

Interstate 80/San Pablo Dam Road Interchange Project

CONTRA COSTA COUNTY, CALIFORNIA
DISTRICT 04 – CCC – 80, PM 3.8/5.3
EA 0A0800

Initial Study with Proposed Mitigated Negative Declaration/Environmental Assessment



Prepared for the
State of California Department of Transportation
In cooperation with
Contra Costa Transportation Authority

The environmental review, consultation, and any other action required in accordance with applicable Federal laws for this project is being, or has been, carried out by Caltrans under its assumption of responsibility pursuant to 23 U.S.C. 327.



July 2009

GENERAL INFORMATION ABOUT THIS DOCUMENT

What's in this document:

The California Department of Transportation (Department), as assigned by the Federal Highway Administration (FHWA), has prepared this Initial Study/Environmental Assessment (IS/EA), which examines the potential environmental impacts of the proposed project located in Contra Costa County, California. The document describes why the project is being proposed, alternatives for the project, the existing environment that could be affected by the project, the potential impacts from each of the alternatives, and the proposed avoidance, minimization, and/or compensation measures.

What you should do:

- Please read this IS/EA. Additional copies of this document as well as the technical studies are available for review at the Department of Transportation District 4 Office, 111 Grand Avenue, Oakland, CA, and the San Pablo Library, 2300 El Portal Drive, San Pablo, CA.
- Attend the public meeting on August 19, 2009, at the City of San Pablo Office Complex, Maple Hall, 13831 San Pablo Avenue, San Pablo, CA.
- We welcome your comments. If you have any concerns regarding the proposed project, please attend the public meeting and/or send your written comments to Department of Transportation, District 4, Attn: Sheryl M. Garcia, P.O. Box 23660, Oakland, CA 94623-0660.
- Submit comments by the deadline: September 8, 2009.

What happens next:

After comments are received from the public and reviewing agencies, the Department, as assigned by the FHWA, may (1) give environmental approval to the proposed project, (2) undertake additional environmental studies, or (3) abandon the project. If the project is given environmental approval and funding is appropriated, the Department could design and construct all or part of the project.

For individuals with sensory disabilities, this document is available in Braille, in large print, on audiocassette, or on computer disk. To obtain a copy in one of these alternate formats, please call or write to Department of Transportation, Attn: Allyn Amsk, Office of Public Information, P.O. Box 23660, Oakland, CA, 94623-0660, email: Allyn_Amsk@dot.ca.gov, or use the California Relay Service TTY number (800-735-2929).

It should be noted that at a future date, the Department acting through FHWA or another Federal agency may publish a notice in the Federal Register, pursuant to 23 USC §139(l), indicating that a final action has been taken on this project by the Department or another Federal agency. If such notice is published, a lawsuit or other legal claim will be barred unless it is filed within 180 days after the date of publication of the notice (or within such shorter time period as is specified in the Federal laws pursuant to which judicial review of the Federal agency action is allowed). If no notice is published, then the lawsuit or claim can be filed as long as the periods of time provided by other Federal laws that govern claims are met.



SCH #: TBA
04-CCC-80, PM 3.8/5.3
EA 0A0800

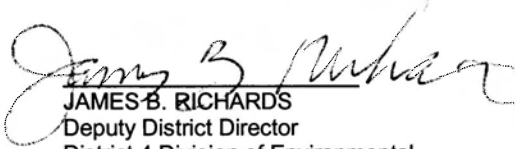
Improve the Interstate 80/San Pablo Dam Road Interchange in the City of San Pablo and
unincorporated Contra Costa County, bordering the City of Richmond, California (Post Miles 3.8 to 5.3)

**INITIAL STUDY with PROPOSED MITIGATED NEGATIVE DECLARATION
and ENVIRONMENTAL ASSESSMENT**

Submitted Pursuant to: (State) Division 13, California Public Resources Code and
(Federal) 42 USC 4332(2)(C)

THE STATE OF CALIFORNIA
Department of Transportation

7/8/09
Date of Approval


JAMES B. RICHARDS
Deputy District Director
District 4 Division of Environmental
Planning and Engineering
California Department of Transportation



Proposed Mitigated Negative Declaration (ND)

Pursuant to: Division 13, Public Resources Code

Project Description

The California Department of Transportation (Department), in cooperation with the Contra Costa Transportation Authority (CCTA), propose to increase the traffic capacity of the Interstate 80 (I-80) interchange at San Pablo Dam Road located in the City of San Pablo and unincorporated Contra Costa County, bordering the City of Richmond, California. The purpose of the project is to improve traffic operations and bicycle/pedestrian access at the interchange.

Determination

This proposed Mitigated Negative Declaration (MND) is included to give notice to interested agencies and the public that it is the Department's intent to adopt an MND for this project. This does not mean that the Department's decision regarding the project is final. This MND is subject to modification based on comments received by interested agencies and the public.

The Department has prepared an Initial Study for this project, and pending public review, expects to determine from this study that the proposed project would not have a significant effect on the environment for the following reasons:

The proposed project would have no effect on growth, farmlands/timberlands, paleontology, natural communities, wetlands and other waters of the United States, and plant species. In addition, the proposed project would have no significant effect on land use; community character and cohesion; utilities and emergency services; traffic and transportation/pedestrian and bicycle facilities; visual/aesthetics; cultural resources; hydrology and floodplain; water quality and stormwater runoff; geology, soils, and seismicity; hazardous waste and materials; air quality; noise; animal species; and invasive species. The proposed project would have no significantly adverse effect on community impacts (relocations) and threatened and endangered species, because the following mitigation measures would reduce potential effects to insignificance:

- Relocation assistance payments and counseling will be provided to persons and businesses in accordance with the Caltrans Relocation Assistance Program and Federal laws and regulations.
- In addition to construction best management practices to avoid impacts to California red-legged frog habitat, mitigation for impacts to upland habitat will be provided at a 1:1 ratio for temporary impacts and a 3:1 ratio for permanent impacts (0.10 acre).

JAMES B. RICHARDS

Deputy District Director

District 4 Division of Environmental Planning and Engineering
California Department of Transportation

Date



Summary

The California Department of Transportation (Department) proposes to increase the traffic capacity of the Interstate 80 (I-80) interchange at San Pablo Dam Road located in the City of San Pablo and unincorporated Contra Costa County, bordering the City of Richmond, California.

The Department is the lead California Environmental Quality Act (CEQA) agency for the project, and effective July 1, 2007, has been assigned environmental review and consultation responsibilities under the National Environmental Policy Act (NEPA) pursuant to 23 United States Code (USC) 327. The project is proposed in cooperation with the Contra Costa Transportation Authority (CCTA), which is responsible for providing regional funding.

The purpose of the project is to improve traffic operations and bicycle/pedestrian access at the I-80/San Pablo Dam Road Interchange. Two build alternatives are evaluated that differ at the I-80/San Pablo Dam Road Interchange structure: Alternative 1, the Lanes Added Alternative, and Alternative 2, the Tight Diamond Alternative. However, existing conditions between the San Pablo Dam Road Interchange and the interchanges immediately to the east and west affect the flow of traffic and contribute to congestion on westbound I-80 in the immediate vicinity of San Pablo Dam Road. The proposed project limits therefore extend from the McBryde Avenue interchange to the El Portal Drive interchange (Post Miles 3.8 to 5.3). Proposed improvements on I-80 within the project corridor include relocating the existing westbound El Portal Drive on-ramp, building a new westbound auxiliary lane from the relocated westbound El Portal Drive on-ramp to the San Pablo Dam Road off-ramp, and adding a frontage road between the I-80/San Pablo Dam Road on-ramp and McBryde Avenue (to replace the existing I-80/McBryde Avenue off-ramp). Other elements of the project include relocation of the pedestrian overcrossing at Riverside Avenue, pedestrian and bike improvements at the I-80/San Pablo Dam Road Interchange, and restriping of the eastbound off-ramp at El Portal Drive. The total length of the project is 1.47 miles.

This Initial Study/Environmental Assessment (IS/EA) addresses the proposed project's potential to have adverse impacts on the environment. Potential impacts and avoidance, minimization, and mitigation measures are summarized in Table S-1.

In addition to NEPA and CEQA compliance, the project is subject to other Federal, State, and local laws, policies, and guidelines that are addressed in this IS/EA. Applicable regulatory consultation or approvals have been completed or may be needed from the following agencies:

- U.S. Fish and Wildlife Service (USFWS) – Consultation was initiated with submittal of a Biological Assessment in September 2008. Coordination will be completed before project certification.
- National Marine Fisheries Service (NOAA Fisheries) – In September 2008, the Department submitted a fisheries Biological Assessment. NOAA Fisheries had no comments on the Department’s “no effect” determination. Consultation has been completed.
- U.S. Army Corps of Engineers (USACE) – The need for a USACE permit is not anticipated because work will avoid the San Pablo Creek channel and will be restricted to top of the banks of the Wildcat Creek channel.
- State Historic Preservation Officer (SHPO) – The SHPO concurred in October 2008 that the project would not affect historic resources and that Section 106 requirements have been satisfied.
- California Department of Fish and Game (CDFG) – A Streambed Alteration Agreement permit may be required for work at the top of the banks of Wildcat Creek. If needed, an application for this permit will be submitted during final project design.
- Regional Water Quality Control Board (RWQCB) and State Water Resources Control Board (SWRCB) National Pollutant Discharge Elimination System (NPDES) permit – Applications/notifications for these permits will be submitted during final project design.
- City of San Pablo – Authorization/notification for temporary and/or permanent encroachment will be coordinated during final project design.

Table S-1 Summary of Impacts and Avoidance, Minimization, and/or Mitigation Measures

Affected Resource	Potential Impact			Avoidance, Minimization, and/or Mitigation Measures	
	No Build Alt.	Lanes Added (Alt. 1)	Tight Diamond (Alt. 2)	Lanes Added (Alt. 1)	Tight Diamond (Alt. 2)
Land Use	None.	Reconstruction of the pedestrian overcrossing at Riverside Avenue would require temporary closure of the existing structure, which would affect access to and from Riverside Elementary School and the neighborhood west of I-80. A permanent easement or transfer agreement for a portion of the school parking lot would be needed to extend the overcrossing across Amador Street.		Reconstruction of the overcrossing will be timed to avoid school sessions as much as possible. Staff and parents will be given advance notice of construction plans and timing. The overcrossing will be designed so that school staff can lock a gate preventing entrance to school property.	
Growth	None.	The build alternatives would not induce new growth. The project would not substantially change roadway capacity or serve any new areas not already accessible by existing interchanges. The project area is already highly urbanized.		None required.	
Community Impacts: Relocations	None.	<p>The project would require acquisition of parcels or temporary construction easements adjacent to the right-of-way. Full parcel acquisitions could be needed for one commercial property, one multi-family residence, six single-family homes, and one triplex. Partial parcel acquisitions could be needed for two commercial businesses and six single-family homes. At a group of parcels owned by Caltrans and leased to a business, the lease would not be renewed.</p> <p>Reconstruction of the Riverside Avenue overcrossing would require a partial parking lot acquisition and loss of nine parking spaces. The Department and CCTA will work with the school district to define the easement or agreement that allows for construction and maintenance of the overcrossing.</p>		Relocation assistance payments and counseling will be provided to persons and businesses in accordance with the Department's Relocation Assistance Program.	

Table S-1 Summary of Impacts and Avoidance, Minimization, and/or Mitigation Measures

Affected Resource	Potential Impact			Avoidance, Minimization, and/or Mitigation Measures	
	No Build Alt.	Lanes Added (Alt. 1)	Tight Diamond (Alt. 2)	Lanes Added (Alt. 1)	Tight Diamond (Alt. 2)
Community Impacts: Environmental Justice	None.	Construction of the proposed frontage road between San Pablo Dam Road and McBryde Avenue would result in acquiring four single-family homes, a triplex, and an apartment complex in a census block group (3690.01) that has approximately twice the percentage of African-American residents as the City of San Pablo overall. The necessary relocations are unavoidable and are the same for both build alternatives.		Relocation assistance will be provided as described for Community Impacts: Relocations.	
Community Impacts: Community Character and Cohesion	None.	The project would not divide or isolate residences or neighborhood. Reconstruction of the Riverside Avenue pedestrian overcrossing and addition of sidewalks and crosswalks to San Pablo Dam Road would improve pedestrian access.		Measures for temporary pedestrian access impacts are described under Land Use.	
Utilities and Emergency Services	None.	Both build alternatives would require relocating sewer, electrical, gas, water, petroleum, and communication lines. No longitudinal encroachment exceptions are expected to be necessary because all utilities would remain outside State access control lines, and all would be accessible from local streets.		None required.	

Table S-1 Summary of Impacts and Avoidance, Minimization, and/or Mitigation Measures

Affected Resource	Potential Impact			Avoidance, Minimization, and/or Mitigation Measures	
	No Build Alt.	Lanes Added (Alt. 1)	Tight Diamond (Alt. 2)	Lanes Added (Alt. 1)	Tight Diamond (Alt. 2)
Traffic and Transportation, Pedestrian and Bicycle Facilities	By 2035, most segments of I-80 would function at capacity (LOS E or F) in the peak period commute direction. Delays at some project area intersections would exceed 50 to 80 seconds.	Levels of service would be the same or improve. In the AM peak, Alt. 1 would accommodate 20% more vehicles than the No Build Alt., reduce travel time by 19%, increase speed by 54%, and reduce delay by 64%. Alt. 1 would also improve speed and reduce delay in the PM peak compared to the No Build Alt. The project would improve pedestrian and bicycle facilities and upgrade existing sidewalks to ADA standards.	Levels of service would be the same or improve. In the AM peak, Alt. 2 would accommodate 17% more vehicles than the No Build Alt., reduce travel time by 12%, increase speed by 38%, and reduce delay by 47%. Alt. 2 would also improve speed and reduce delay in the PM peak compared to the No Build Alt. The project would improve pedestrian and bicycle facilities and upgrade existing sidewalks to ADA standards.	None required.	
Visual/Aesthetics	None.	On Rollingwood Drive and El Portal Drive, residences and trees would be removed, exposing views of I-80 and the existing El Portal Drive undercrossing. The new San Pablo Dam Road Overcrossing would be wider and higher and require installation of new retaining walls. Homes on the east side of Humboldt Street would be removed. Soundwalls would be added or reconstructed along I-80 near El Portal Drive and Humboldt Street. Retaining walls would be added near the San Pablo Dam Road Interchange and Amador Street. Lighting for nighttime construction could create a temporary source of light or glare.		Recommended measures include planting trees and other landscaping to soften appearance of freeway structures and adding an aesthetic treatment to retaining walls and soundwalls to match existing walls.	

Table S-1 Summary of Impacts and Avoidance, Minimization, and/or Mitigation Measures

Affected Resource	Potential Impact			Avoidance, Minimization, and/or Mitigation Measures	
	No Build Alt.	Lanes Added (Alt. 1)	Tight Diamond (Alt. 2)	Lanes Added (Alt. 1)	Tight Diamond (Alt. 2)
Cultural Resources	None.	No sensitive cultural resources were identified within the archaeological or historical areas of potential effect. The project would not affect a Section 4(f) resource.		If cultural materials are discovered during construction, earth-moving activities will be diverted until an archaeologist can assess the find. If human remains are discovered, the procedures described in State law will be implemented.	
Hydrology and Floodplains	None.	The 100-year floodplain is contained within the banks of Wildcat Creek. A bridge structure would be placed at the top of the creek bank. No other structures or construction activities would affect project area creeks or their banks. The project would avoid designated floodplains. Increases in runoff from impervious surface area added by the project would be 3.76 acres and would not change existing flood elevations.		None required.	
Water Quality and Stormwater Runoff	None.	Temporary adverse impacts could result from construction-related erosion and subsequent transport of sediment to surface waters. Erosion could increase suspended solids, dissolved solids, and organic pollutants in stormwater runoff. Potential exists for spills and leaks of fluids from vehicles and equipment used during construction. The project would not increase overall traffic volumes but would increase impervious surface area.		Permanent erosion control best management practices (BMPs) will be included in the project to prevent an adverse change in downstream water quality. Measures will include feasible temporary (short-term) and permanent (long-term) BMPs. The required Storm Water Pollution Prevention Plan will include stormwater BMPs for temporary soil stabilization and sediment control.	

Table S-1 Summary of Impacts and Avoidance, Minimization, and/or Mitigation Measures

Affected Resource	Potential Impact			Avoidance, Minimization, and/or Mitigation Measures	
	No Build Alt.	Lanes Added (Alt. 1)	Tight Diamond (Alt. 2)	Lanes Added (Alt. 1)	Tight Diamond (Alt. 2)
Geology, Soils, and Seismicity	Surface fault rupture could damage roadway surfaces and require temporary road closure until repaired.	See No Build Alt. Also, project structures such as bridges and overcrossings would be exposed to strong ground shaking. One of the Alt. 1 bridge abutments is near but is not predicted to cross a potential surface fault rupture zone; surface rupture underneath a structure could cause damage or failure. The replacement Riverside Avenue pedestrian overcrossing could have some risk of damage from liquefaction. San Pablo Dam Road would be shifted slightly toward the toe of the China Slide landslide area.	Same as Alt. 1, except Alt. 2 would realign the San Pablo Dam Road Overcrossing away from the toe of the China Slide area, reducing the risk of future slope failure.		Additional geotechnical and design investigations will be performed during final design and engineering, including site-specific evaluation of subsurface conditions at the actual locations of proposed foundations. Project elements will be designed and constructed to meet seismic design requirements for ground shaking and ground motions. Measures to minimize landsliding and slope instability will be refined during final design.

Table S-1 Summary of Impacts and Avoidance, Minimization, and/or Mitigation Measures

Affected Resource	Potential Impact			Avoidance, Minimization, and/or Mitigation Measures	
	No Build Alt.	Lanes Added (Alt. 1)	Tight Diamond (Alt. 2)	Lanes Added (Alt. 1)	Tight Diamond (Alt. 2)
Hazardous Waste and Materials	None.	<p>Aerially deposited lead (ADL) from exhaust from leaded gasoline may occur near a highway or roadway. The project would acquire and remove some existing residential and commercial structures that may contain hazardous materials such as asbestos and lead paint in the building materials. Exposure to airborne contaminants from these materials during demolition could affect safety and health.</p> <p>The site investigation identified gas stations outside of the proposed right-of-way where remediation has taken place. There is a low risk that subsurface construction activities could encounter petroleum hydrocarbons in shallow groundwater.</p>		<p>Before project construction, testing for ADL will be performed and special handling measures will be implemented if necessary. All activities involving contaminated soil or groundwater, if found, will comply with the various regulatory agencies' requirements. Existing structures that will be removed or modified will be tested for hazardous materials such as lead-based paint and asbestos. If present, these materials will be handled and disposed accordingly.</p>	
Air Quality	None.	<p>Construction activities associated with the proposed project would generate emissions of criteria pollutants throughout the construction period.</p> <p>There is an unknown potential that demolition and construction activities could result in the airborne release of asbestos fibers from structural and naturally occurring asbestos.</p>		<p>The construction contractor will comply with Caltrans' Standard Specifications Section 7-1.01F and Section 10 of Caltrans' Standard Specifications.</p> <p>Structure foundation locations will be considered for investigation for naturally occurring asbestos during the final design phase. Structures that will be removed or modified and may present a risk of presence or release of asbestos materials will be tested. If present, these materials will be handled and disposed accordingly.</p>	

Table S-1 Summary of Impacts and Avoidance, Minimization, and/or Mitigation Measures

Affected Resource	Potential Impact			Avoidance, Minimization, and/or Mitigation Measures	
	No Build Alt.	Lanes Added (Alt. 1)	Tight Diamond (Alt. 2)	Lanes Added (Alt. 1)	Tight Diamond (Alt. 2)
Noise	Fifteen of 23 locations studied have existing noise levels that approach or exceed Federal noise abatement criteria.	The project would result in temporary traffic noise increases in some locations of up to 11 dBA after existing soundwalls or portions of soundwalls are removed and before the replacement soundwalls are constructed. Construction activities could at times generate noise levels higher than existing traffic noise levels.		Soundwalls have been identified as feasible in three locations. Temporary construction-related noise will be reasonably minimized by implementing provisions in Section 7-1.011 of the Caltrans Standard Specifications and abatement measures.	
Natural Communities	None.	None. The project corridor is highly urbanized but crosses vegetated streambanks at San Pablo and Wildcat creeks. Construction of a frontage road bridge would affect the top of the banks of Wildcat Creek, but no work would take place within the bank area or the creek itself. San Pablo Creek banks will be entirely avoided.		None required.	
Wetlands and Other Waters of the United States	None.	None. Construction of a frontage road bridge would affect the top of the banks of Wildcat Creek, but no work would take place within the bank area or the creek itself.		Wildcat Creek below the existing wingwalls will be designated as an environmentally sensitive area (ESA) and flagged to exclude construction workers and equipment. Best management practices will be implemented during bridge construction to prevent stormwater runoff from the construction area from entering Wildcat Creek.	
Plant Species	None.	None. No special-status plants occur in the project area.		None required.	

Table S-1 Summary of Impacts and Avoidance, Minimization, and/or Mitigation Measures

Affected Resource	Potential Impact			Avoidance, Minimization, and/or Mitigation Measures	
	No Build Alt.	Lanes Added (Alt. 1)	Tight Diamond (Alt. 2)	Lanes Added (Alt. 1)	Tight Diamond (Alt. 2)
Animal Species	None.	Vegetation removal on the east side of I-80 would result in minimal habitat loss. Vegetation removal that takes place during the migratory bird nesting and breeding season (generally March 1 to August 31) could affect migratory birds, if present.			Existing cut slopes will be reseeded as appropriate, and landscaping will be installed following construction. Erosion control measures will be used where appropriate to prevent material and sediments from entering creeks. Vegetation removal should avoid the nesting season. If vegetation must be removed during this period, preconstruction surveys should be conducted to check for presence of active nests, and a perimeter established to avoid active nests until the breeding pair and any fledglings leave.
Threatened and Endangered Species	None.	There is a potential that California red-legged frog could occur at Wildcat Creek. The project would disturb approximately 0.008 acre (temporary) and 0.031 acre (permanent) of vegetation at the upper banks of Wildcat Creek.			Measures will be implemented during construction to avoid or minimize impacts to California red-legged frog. Mitigation for impacts to California red-legged frog habitat will be provided at a 1:1 ratio for temporary impacts and at a 3:1 ratio for permanent impacts.
Invasive Species	None.	Project construction activities could have the potential to inadvertently spread invasive species if present.			Project landscaping and erosion control will avoid using species listed as noxious weeds. The contractor will be required to use equipment that is cleaned and inspected for plant material prior to arrival and use at the project site.

Table S-1 Summary of Impacts and Avoidance, Minimization, and/or Mitigation Measures

Affected Resource	Potential Impact			Avoidance, Minimization, and/or Mitigation Measures	
	No Build Alt.	Lanes Added (Alt. 1)	Tight Diamond (Alt. 2)	Lanes Added (Alt. 1)	Tight Diamond (Alt. 2)
Cumulative Impacts	None.	Recent and proposed development would add a total of 500 to 600 residential units and some commercial and mixed-use facilities within approximately three miles of the project limits. This development is assumed in the traffic, air quality, and noise analyses performed for the I-80/San Pablo Dam Road Interchange Project.		None required.	
Climate Change	None.	The project would increase the number of vehicles that travel through the project area by 4% to 20%, depending on direction and AM or PM peak travel period. The project would decrease total travel time by 12% to 19% and reduce delay time by 5% to 64%. Reductions in congestion and delays will reduce emissions of pollutants, including carbon dioxide.		None required.	



Table of Contents

Cover Sheet	i
Proposed Mitigated Negative Declaration (ND).....	iii
Summary	v
Table of Contents	xvii
List of Figures	xxi
List of Tables	xxii
Chapter 1. Proposed Project.....	1-1
1.1. Introduction.....	1-1
1.1.1. Location and Route Description	1-1
1.1.2. Background.....	1-2
1.2. Purpose and Need	1-11
1.2.1. Project Purpose	1-11
1.2.2. Project Need.....	1-11
1.3. Project Description	1-18
1.3.1. Project Alternatives	1-18
1.3.2. Traffic Systems Management (TSM) and Traffic Demand Management (TDM) Alternatives	1-28
1.3.3. Project Funding, Estimated Cost, and Schedule	1-28
1.3.4. No Build Alternative.....	1-29
1.4. Comparison of Alternatives	1-30
1.5. Alternatives Considered But Eliminated From Further Discussion.....	1-31
1.6. Permits and Approvals Needed.....	1-33
Chapter 2. Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures	2-1
<i>Human Environment</i>	2-2
2.1. Land Use.....	2-2
2.1.1. Existing and Future Land Use	2-2
2.1.2. Consistency with State, Regional, and Local Plans and Programs	2-6
2.1.3. Environmental Consequences.....	2-9
2.1.4. Avoidance, Minimization, and/or Mitigation Measures	2-10
2.2. Growth	2-10
2.2.1. Regulatory Setting	2-10
2.2.2. Growth Inducement Assessment	2-11
2.3. Community Impacts.....	2-13
2.3.1. Community Character and Cohesion.....	2-13
2.3.2. Relocations	2-19
2.3.3. Environmental Justice.....	2-25
2.4. Utilities and Emergency Services	2-31
2.4.1. Affected Environment	2-31
2.4.2. Environmental Consequences.....	2-31
2.5. Traffic and Transportation/Pedestrian and Bicycle Facilities.....	2-32
2.5.1. Regulatory Setting	2-32
2.5.2. Affected Environment	2-32
2.5.3. Environmental Consequences.....	2-40
2.5.4. Avoidance, Minimization, and/or Mitigation Measures	2-66
2.6. Visual/Aesthetics	2-68
2.6.1. Regulatory Setting	2-68
2.6.2. Affected Environment	2-68

2.6.3.	Environmental Consequences	2-69
2.6.4.	Avoidance, Minimization, and/or Mitigation Measures.....	2-98
2.7.	Cultural Resources	2-99
2.7.1.	Regulatory Setting.....	2-99
2.7.2.	Affected Environment	2-100
2.7.3.	Environmental Consequences	2-101
2.7.4.	Avoidance, Minimization, and/or Mitigation Measures.....	2-101
	<i>Physical Environment</i>	2-103
2.8.	Hydrology and Floodplains.....	2-103
2.8.1.	Regulatory Setting.....	2-103
2.8.2.	Affected Environment	2-103
2.8.3.	Environmental Consequences	2-105
2.8.4.	Avoidance, Minimization, and/or Mitigation Measures.....	2-106
2.9.	Water Quality and Stormwater Runoff	2-107
2.9.1.	Regulatory Setting.....	2-107
2.9.2.	Affected Environment	2-108
2.9.3.	Environmental Consequences	2-109
2.9.4.	Avoidance, Minimization, and/or Mitigation Measures.....	2-110
2.10.	Geology, Soils, and Seismicity.....	2-113
2.10.1.	Regulatory Setting.....	2-113
2.10.2.	Affected Environment	2-114
2.10.3.	Environmental Consequences	2-118
2.10.4.	Avoidance, Minimization, and/or Mitigation Measures.....	2-119
2.11.	Hazardous Waste and Materials	2-120
2.11.1.	Regulatory Setting.....	2-120
2.11.2.	Affected Environment	2-121
2.11.3.	Environmental Consequences	2-122
2.11.4.	Avoidance, Minimization, and/or Mitigation Measures.....	2-123
2.12.	Air Quality.....	2-124
2.12.1.	Regulatory Setting.....	2-124
2.12.2.	Affected Environment	2-125
2.12.3.	Environmental Consequences	2-127
2.12.4.	Avoidance, Minimization, and/or Mitigation Measures.....	2-135
2.13.	Noise	2-137
2.13.1.	Regulatory Setting.....	2-137
2.13.2.	Affected Environment	2-140
2.13.3.	Environmental Consequences	2-142
2.13.4.	Avoidance, Minimization, and/or Abatement Measures.....	2-145
	<i>Biological Environment</i>	2-152
2.14.	Natural Communities	2-152
2.14.1.	Affected Environment	2-152
2.14.2.	Environmental Consequences	2-153
2.14.3.	Avoidance, Minimization, and/or Mitigation Measures.....	2-153
2.15.	Wetlands and Other Waters of the United States	2-154
2.15.1.	Regulatory Setting.....	2-154
2.15.2.	Affected Environment	2-155
2.15.3.	Environmental Consequences	2-155
2.15.4.	Avoidance, Minimization, and/or Mitigation Measures.....	2-156
2.16.	Plant Species	2-156
2.16.1.	Regulatory Setting.....	2-156
2.16.2.	Affected Environment	2-156

2.16.3.	Environmental Consequences.....	2-157
2.16.4.	Avoidance, Minimization, and/or Mitigation Measures	2-157
2.17.	Animal Species	2-157
2.17.1.	Regulatory Setting	2-157
2.17.2.	Affected Environment	2-158
2.17.3.	Environmental Consequences.....	2-158
2.17.4.	Avoidance, Minimization, and/or Mitigation Measures	2-159
2.18.	Threatened and Endangered Species	2-159
2.18.1.	Regulatory Setting	2-159
2.18.2.	Affected Environment	2-160
2.18.3.	Environmental Consequences.....	2-162
2.18.4.	Avoidance, Minimization, and/or Mitigation Measures	2-162
2.19.	Invasive Species.....	2-164
2.19.1.	Regulatory Setting	2-164
2.19.2.	Affected Environment	2-164
2.19.3.	Environmental Consequences.....	2-164
2.19.4.	Avoidance, Minimization, and/or Mitigation Measures	2-165
	<i>Cumulative Impacts</i>	2-166
2.20.	Cumulative Impacts	2-166
2.20.1.	Regulatory Setting	2-166
2.20.2.	Projects Considered for Cumulative Impacts	2-166
2.20.3.	Environmental Consequences.....	2-170
2.21.	Climate Change	2-173
2.21.1.	Regulatory Setting	2-173
2.21.2.	Environmental Consequences.....	2-175
Chapter 3.	Comments and Coordination.....	3-1
3.1.	Initial Project Development and Public Participation.....	3-1
3.2.	Consultation and Coordination with Public Agencies	3-2
3.3.	Public Participation in Development of the Draft Environmental Document and Draft Project Report	3-3
3.3.1.	Project Information Posted on Agency and Community Websites	3-3
3.3.2.	November 29, 2007, Property Owner Meeting.....	3-4
3.3.3.	December 3, 2007, Public Information Meeting	3-4
3.3.4.	July 29, 2008, Presentation of Project to Richmond City Council	3-6
3.3.5.	October 2, 2008, Public Information Meeting.....	3-6
3.4.	Circulation, Review, and Comment on the Draft Environmental Document	3-8

Table of Contents

Chapter 4.	List of Preparers	4-1
Chapter 5.	Distribution List	5-1
Chapter 6.	References	6-1
Appendix A	Project Plans.....	A-1
Appendix B	CEQA Checklist.....	B-1
Appendix C	Title VI Policy Statement.....	C-1
Appendix D	Summary of Relocation Benefits	D-1
Appendix E	Glossary of Technical Terms	E-1
Appendix F	Minimization and/or Mitigation Summary	F-1
Appendix G	List of Acronyms	G-1
Appendix H	List of Technical Studies.....	H-1
Appendix I	Correspondence.....	I-1

List of Figures

Figure 1-1	Project Location Map	1-3
Figure 1-2	Vicinity Map.....	1-5
Figure 1-3	Project Features	1-7
Figure 1-4	Existing San Pablo Dam Road Interchange.....	1-9
Figure 1-5	Levels of Service for Freeways, Signalized Intersections, and Unsignalized Intersections.....	1-13
Figure 1-6	Lanes Added Alternative	1-21
Figure 1-7	Tight Diamond Alternative.....	1-23
Figure 2.1-1	Land Use.....	2-3
Figure 2.3-1	Census Block Group Boundary	2-15
Figure 2.3-2	Potentially Affected Parcels	2-21
Figure 2.5-1	Future No Build Conditions Peak Hour Turning Movement Volumes ..	2-53
Figure 2.5-2	Future Alternative 1 Conditions Peak Hour Turning Movement Volumes.....	2-55
Figure 2.5-3	Future Alternative 2 Conditions Peak Hour Turning Movement Volumes.....	2-57
Figure 2.6-1	Key Map: Existing View and Visual Simulation Perspectives	2-73
Figure 2.6-2	Existing Views in the Project Area (A–D)	2-75
Figure 2.6-3	Existing Views in the Project Area (E–H).....	2-77
Figure 2.6-4	Existing Views in the Project Area (I–L)	2-79
Figure 2.6-5	Existing Views in the Project Area (M)	2-81
Figure 2.6-6	Existing and Simulated View from Rollingwood Drive (View N)	2-83
Figure 2.6-7	Existing and Simulated View From I-80 Westbound Off-Ramp at San Pablo Dam Road (View O).....	2-85
Figure 2.6-8	Existing and Simulated View of San Pablo Dam Road over I-80 (View P).....	2-87
Figure 2.6-9	Existing and Simulated View along Humboldt Avenue (View Q).....	2-89
Figure 2.6-10	Existing and Simulated View (Alternative 1) from Amador St. at I- 80/San Pablo Dam Road Intersection (View R-1).....	2-91
Figure 2.6-11	Existing and Simulated View (Alternative 2) from Amador St. at I- 80/San Pablo Dam Road Intersection (View R-2).....	2-93
Figure 2.8-1	FEMA Flood Insurance Rate Map: Wildcat Creek 100-Year Floodplain.....	2-104
Figure 2.8-2	FEMA Flood Insurance Rate Map: San Pablo 100-Year Floodplain ...	2-105
Figure 2.13-1	Noise Levels of Common Activities	2-139
Figure 2.21-1	California Greenhouse Gas Inventory	2-175
Figure 2.21-2	Fleet CO ₂ Emissions vs. Speed (Highway)	2-176
Figure 2.21-3	Outcome of Strategic Growth Plan.....	2-178

List of Tables

Table S-1	Summary of Impacts and Avoidance, Minimization, and/or Mitigation Measures vii
Table 1-1	Summary of Level of Service Analysis at Study Intersections: Existing Conditions 1-14
Table 1-2	Traffic Accident Data..... 1-15
Table 1-3	Comparison of the Differences Between the Build Alternatives 1-30
Table 1-4	Design Concepts Evaluated During Alternative Development..... 1-32
Table 1-5	Regulatory Permits and Approvals 1-33
Table 2.1-1	Planned or Recently Completed Projects in the Study Area 2-7
Table 2.3-1	Properties Potentially Affected by the Project 2-20
Table 2.3-2	Income Statistics for the City of San Pablo and Study Area in 2000..... 2-27
Table 2.3-3	Racial/Ethnic Composition of the City of San Pablo and the Study Area in 2000..... 2-28
Table 2.5-1	AM Peak Period Existing Conditions (Year 2005) and Future (Year 2035) Traffic Demand (Freeway and Ramps)..... 2-36
Table 2.5-2	PM Peak Period Existing Conditions (Year 2005) and Future (Year 2035) Traffic Demand (Freeway and Ramps)..... 2-37
Table 2.5-3	Summary of I-80 Mainline Segment Levels of Service for Existing and Future No Build Conditions 2-39
Table 2.5-4	Summary of Intersection Levels of Service for Existing and Future No Build Conditions 2-39
Table 2.5-5	AM Peak Period Comparison of Traffic Conditions – No Build Alternative..... 2-40
Table 2.5-6	PM Peak Period Comparison of Traffic Conditions – No Build Alternative..... 2-42
Table 2.5-7A	Summary of Level of Service Analysis at Study Intersections: Future No Build Conditions 2-43
Table 2.5-7B	Level of Service Analysis by Movement at Study Intersections: Future No Build Conditions 2-44
Table 2.5-8	AM Peak Period Comparison of Traffic Conditions –Alternative 1 2-46
Table 2.5-9	PM Peak Period Comparison of Traffic Conditions –Alternative 1 2-48
Table 2.5-10A	Summary of Level of Service Analysis at Study Intersections—Future Alternative 1 Conditions 2-49
Table 2.5-10B	Level of Service Analysis by Movement at Study Intersections: Future Alternative 1 Conditions 2-50
Table 2.5-11	AM Peak Period Comparison of Traffic Conditions – Alternative 2..... 2-59
Table 2.5-12	PM Peak Period Comparison of Traffic Conditions – Alternative 2 2-60
Table 2.5-13A	Summary of Level of Service Analysis at Study Intersections— Future Alternative 2 Conditions 2-62
Table 2.5-13B	Level of Service Analysis by Movement at Study Intersections: Future Alternative 2 Conditions 2-63
Table 2.5-14	Comparison of Traffic Measures of Effectiveness..... 2-67
Table 2.6-1	Summary of Visual Changes at Representative View Locations..... 2-69
Table 2.6-2	Visual Mitigation Measures 2-98
Table 2.9-1	Minimum Requirements for Temporary BMPs 2-112
Table 2.12-1	State and National Ambient Air Quality Standards 2-126
Table 2.12-2	Comparison of Project to an Existing Interchange per CO Protocol Criteria 2-130

Table 2.13-1	Federal Noise Abatement Criteria	2-138
Table 2.13-2	Loudest Hour Noise Levels and Impacts, $L_{eq(hr)}$ dBA.....	2-143
Table 2.13-3	Summary of Soundwall Feasibility and Reasonable Allowances (Alternatives 1 and 2)	2-146
Table 2.18-1	Proposed Compensatory Mitigation for California Red-Legged Frog Impacts	2-164
Table 2.21-1	Climate Change Strategies.....	2-180



Chapter 1. Proposed Project

1.1. Introduction

The California Department of Transportation (Department) proposes to increase the traffic capacity of the Interstate 80 (I-80)/San Pablo Dam Road Interchange located in the City of San Pablo and unincorporated Contra Costa County, bordering the City of Richmond, California (Figures 1-1 and 1-2). The interchange lacks sufficient capacity to accommodate future growth, and existing conditions between the I-80/San Pablo Dam Road Interchange and the interchanges immediately to the east and west affect the flow of traffic and contribute to congestion on westbound I-80 in the immediate vicinity of San Pablo Dam Road. The project limits on I-80 extend from McBryde Avenue to El Portal Drive (Post Miles 3.8 to 5.3) (Figure 1-3) to include these adjacent interchanges. The total length of the project is 1.47 miles.

This project is included in the Metropolitan Transportation Commission's (MTC) most recent Regional Transportation Plan (RTP), the *Transportation 2035 Plan for the San Francisco Bay Area* (MTC 2009; RTP ID No. 22360). The project is also included in the 2009 Transportation Improvement Program (TIP), which was adopted by MTC on May 28, 2008 (TIP ID No. CC-070035). A TIP amendment in 2009 updated the project description and funding (Revision ID No. CC-070035, TIP Amendment 09-06). The Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) approved the 2009 TIP on November 17, 2008, and approved TIP Amendment 09-06 on May 29, 2009.

The Department is the lead California Environmental Quality Act (CEQA) agency for the project, effective July 1, 2007. The Department has been assigned environmental review and consultation responsibilities under the National Environmental Policy Act (NEPA) pursuant to 23 United States Code (USC) 327. The project is proposed in cooperation with the Contra Costa Transportation Authority, which is responsible for providing regional funding.

1.1.1. Location and Route Description

I-80 is a major access route for interstate and intrastate traffic traveling to and from the San Francisco Bay Area, as well as a major commuter route within the East Bay and between the East Bay and San Francisco. Within the project limits, I-80 is an eight-lane

divided freeway with one eastbound and one westbound lane designated as high-occupancy vehicle (HOV) lanes during peak commute hours. Although the segment of I-80 in the project limits generally trends north-south, this report refers to I-80 by its ultimate travel directions of east and west.

The I-80/San Pablo Dam Road Interchange provides access to I-80 from San Pablo Dam Road, San Pablo Avenue, and Amador Street in the City of San Pablo. The interchange is a major commute route and transportation gateway to the City of San Pablo and unincorporated Contra Costa County. The existing tight diamond interchange (Figure 1-4) is composed of the four-lane San Pablo Dam Road Overcrossing with diagonal on-ramps and off-ramps serving eastbound and westbound I-80. The overcrossing is a concrete continuous multiple box girder bridge approximately 61 feet wide by 128 feet long. On the east side of I-80, the eastbound on-ramp and off-ramp and Amador Street, which serves as a frontage road to I-80, form a five-way intersection with San Pablo Dam Road.

1.1.2. Background


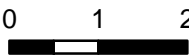
I-80 in the project area was built as a six-lane freeway in 1956 and became the first California freeway to open under the Federal Highway Act of 1956. Known originally as the Eastshore Freeway, I-80 is the primary transportation corridor along the east Bay region, connecting with the San Francisco–Oakland Bay Bridge, I-880 in Oakland/Emeryville, and the Carquinez Bridge. I-80 serves a substantial traffic volume, measured at approximately 223,000 vehicles per day within the project limits in 2007 (Caltrans 2008a).

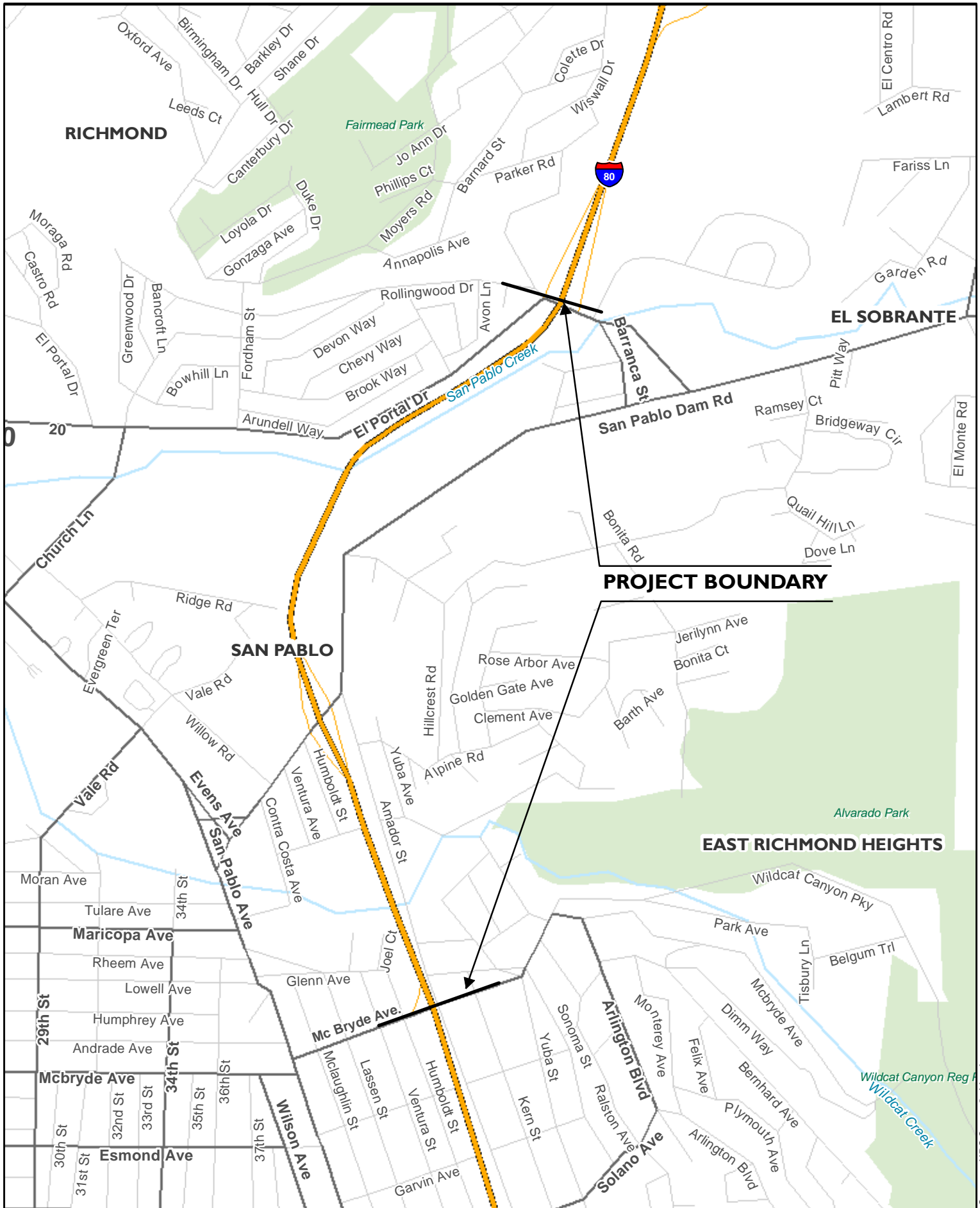
From 1993 to 1998, an operational improvement project in Alameda and Contra Costa counties added an HOV lane on I-80 in both directions. The project initially proposed to realign San Pablo Dam Road at the I-80 interchange. However, the proposed realignment encroached into an adjacent geologically unstable hillside known as the China Slide. Due to time and funding constraints, the realignment of San Pablo Dam Road was eliminated from the project. The San Pablo Dam Road Overcrossing was seismically retrofitted, and the eastbound on-ramp was widened and realigned. The on-ramp work included the construction of two temporary modular block retaining walls.

The improvements to this interchange are identified in regional and local transportation planning. The project is listed and described in the West Contra Costa County Action Plan 2000 Update (WCCTAC 2000), the Contra Costa Transportation Authority's 2007 Congestion Management Program for upgrades and improvements (CCTA 2007a), and




Source: URS Corp., Oakland \S021emc2\SanPablo_PADEIGISMXDs\Current_Working_Documents\Location_map.mxd

  <p>Miles</p>	<p>I-80 / San Pablo Dam Road Interchange Improvement</p> <p>26815671</p>	<p>PROJECT LOCATION MAP</p>	<p>Figure 1-1</p>
--	---	------------------------------------	--------------------------



Source: URS Corp., Oakland P:\GIS\MXDs\Current_Working_Documents\Vicinity_Map.mxd

 <div>0 1,000 2,000 1 INCH = 2,000 FEET</div>	26815671 I-80/San Pablo Dam Road Interchange Improvement	Vicinity Map	Figure 1-2
---	--	--------------	---------------



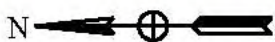
Source: NAIP Imagery, 2005; Contra Costa County, 2007; URS, 2007

- New Lane Alternative
- Project Footprint (Tight Diamond Alt)
- Creeks



0 500 1,000 Feet 1:7,000

I-80/San Pablo Dam Road Interchange Project	Project Features	Figure 1-3
26815671		



26815671

I-80/San Pablo Dam Road
Interchange Improvement

Existing San Pablo Dam Road Interchange

Figure
1-4

CCTA's Measure J Strategic Plan (CCTA 2007b). The City of San Pablo Public Works Division includes the project in its Capital Projects Program 2007/08 Budget plan (City of San Pablo 2008a).

The Caltrans Project Study Report/Project Development Support (PSR/PDS) document completed in May 2004 defined three potential alternatives for replacement of the I-80/San Pablo Dam Road Interchange. As part of project scoping, a community meeting was held in July 2003 to present the alternatives and allow the public to obtain information and ask questions about the project. Three build alternatives (Lanes Added, Tight Diamond, and Quad Two-Way) and the No Build Alternative were subsequently advanced for further consideration, as discussed in detail in Sections 1.3 and 1.5.

1.2. Purpose and Need

1.2.1. Project Purpose

The purpose of the proposed project is to:

- Reduce traffic congestion at the I-80/San Pablo Dam Road Interchange and on local streets in the vicinity of the interchange without increasing congestion on I-80;
- Reduce weaving conflicts between vehicles entering and exiting the freeway at the I-80/San Pablo Dam Road Interchange; and
- Provide efficient and safe bicycle and pedestrian access across I-80.

1.2.2. Project Need

The I-80/San Pablo Dam Road Interchange lacks sufficient capacity to accommodate existing and projected future traffic volumes. Inefficient traffic flows at the I-80/San Pablo Dam Road Interchange ramps result in long queues entering and exiting I-80. Projected future traffic volumes will exacerbate congestion on I-80 and the San Pablo Dam Road ramps and hinder traffic operations on local roads approaching the interchange. The four-lane San Pablo Dam Road Overcrossing lacks the capacity to accommodate projected future traffic volumes. On the east side of this overcrossing is a five-way intersection of San Pablo Dam Road, Amador Street, and the freeway ramps that does not permit left turns from westbound San Pablo Dam Road onto Amador Street. This restriction prevents westbound San Pablo Dam Road traffic from directly accessing Amador Street and Riverside Elementary School. In addition, existing

pedestrian and bicycle facilities are not adequate to provide efficient access through the interchange.

1.2.2.1. Capacity, Transportation Demand, and Safety

Level of service (LOS) is an indicator of operational conditions on a roadway or at an intersection and is defined in categories ranging from A to F. These categories can be viewed much like school grades, with A representing the best roadway conditions and F indicating substantial congestion with stop-and-go traffic (Figure 1-5). At intersections, LOS is evaluated in terms of delay caused by vehicles slowing or stopping due to a signal or stop sign. At signalized intersections, LOS A indicates that vehicles are delayed by ten seconds or less, and LOS F represents delays of more than 80 seconds. At unsignalized intersections, LOS A indicates that vehicles are delayed by less than ten seconds, and LOS F indicates delays of more than 50 seconds.

I-80 in the project area currently¹ operates at LOS F during both the AM and PM peak hours. In the westbound direction, I-80 is four through lanes with auxiliary lanes between some ramps, and yet carries peak AM vehicle volumes that range from approximately 7,400 to 8,600 vehicles per hour. Traffic conditions on San Pablo Dam Road at the interchange are also currently congested, especially during peak commute hours (Table 1-1). The intersection of the eastbound I-80 on- and off-ramps, San Pablo Dam Road, and Amador Street operates at LOS F in the AM and PM commute peak hours (Intersection 5 in Table 1-1) and is forecasted to continue at this level through 2035.² The intersection of the westbound I-80 off-ramp and San Pablo Dam Road (Intersection 4 in Table 1-1) operates at LOS F during the AM peak hours and LOS D during the PM peak hours. These traffic conditions create long queues on San Pablo Dam Road and Amador Street. A recent Department study on I-80 corridor traffic operations showed that traffic slows substantially at the San Pablo Dam Road Interchange—to approximately 12 miles per hour (mph) on westbound I-80 during the AM peak hours and 22 mph on eastbound I-80 during the PM peak hours (Caltrans 2004).

¹ Traffic volumes for existing conditions are from 2005, when environmental analysis for the proposed project commenced.

² Future conditions are normally projected for a 20-year horizon. As project construction is expected to begin in 2015, the future condition year for this study is 2035.

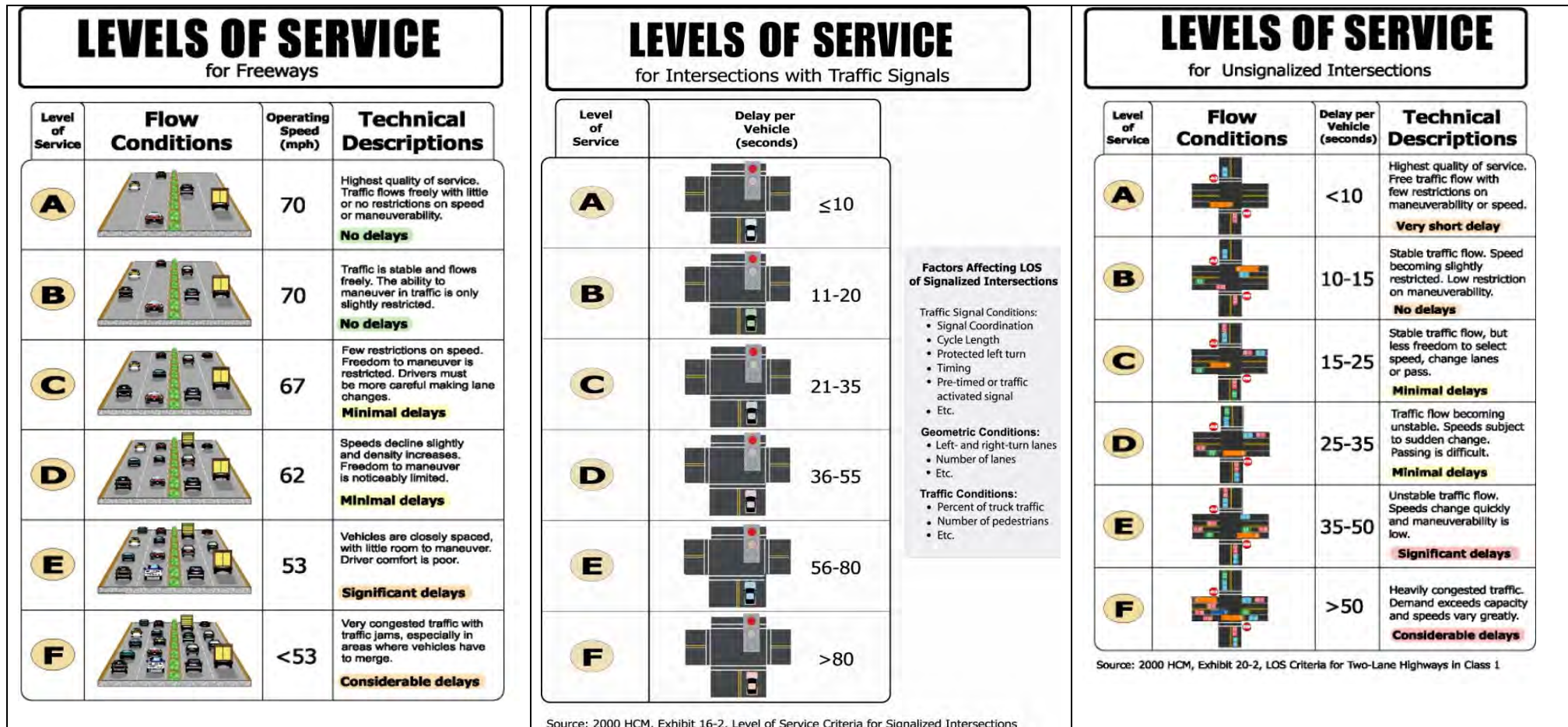


Figure 1-5 Levels of Service for Freeways, Signalized Intersections, and Unsignalized Intersections

**Table 1-1 Summary of Level of Service Analysis at Study Intersections:
Existing Conditions**

Intersection	AM Peak Hour		PM Peak Hour	
	Delay*	LOS	Delay*	LOS
1 San Pablo Avenue/San Pablo Dam Road	28.5	C	>80.0	F
2 Contra Costa Avenue/San Pablo Dam Road	7.8	A	13.3	B
3 Ventura Avenue/San Pablo Dam Road	16.0	B	17.8	B
4 I-80 WB off-ramp/San Pablo Dam Road	>80.0	F	43.6	D
5 Amador Street/San Pablo Dam Road/EB ramps	>80.0	F	>80.0	F
6 San Pablo Dam Road/Morrow Drive	5.1	A	5.3	A
7 Amador Street/Alpine Road	33.2	D	17.9	C
8 I-80 WB off-ramp/McBryde Avenue	41.3	E	16.7	C
9 I-80 WB on-ramp/El Portal Drive	10-1	B	9.9	A
10 I-80 WB off-ramp/El Portal Drive	12.9	B	14.4	B
11 I-80 EB off-ramp/El Portal Drive	22.8	C	59.6	E
12 I-80 WB on-ramp/Solano Avenue	>50.0	F	21.4	C
13 I-80 EB off-ramp/Solano Avenue	17.8	C	15.7	C

Source: URS 2008a**Notes:**

* Delay represented is average delay at signalized intersections and average delay on controlled approaches at unsignalized intersections. Delay is shown in seconds per vehicle.

EB = Eastbound

WB = Westbound

Traffic Accident Surveillance and Analysis System (TASAS) data are summarized in Table 1-2 for the freeway system in the project area for the period of November 1, 2004, through October 31, 2007 (Caltrans 2008a). The data are expressed as accidents per million vehicle miles (MVM) traveled and accidents per million vehicles for ramps. The data show that 44 percent of accidents in the project area occur on westbound I-80 and 56 percent occur on eastbound I-80. The total accident rate on this segment of I-80 is slightly less (1.03 accidents/MVM) than the Statewide average for similar freeways (1.23 accidents/MVM).

Table 1-2 Traffic Accident Data

	Actual Number			Actual Rates			Average Rates		
Year	Total	Fatal	Injury	Fatal	F+I*	Total	Fatal	F+I*	Total
I-80 (Mainline) only, not including ramps (Post Miles 3.8–5.301):									
11/01/04-10/31/07	331	4	84	0.012	.27	1.03	0.007	0.39	1.23
Westbound off-ramp to McBryde Avenue (Post Mile 3.928):									
11/01/04-10/31/07	5	0	0	0	0	0.75	0.005	0.61	1.5
Eastbound off-ramp to San Pablo Dam Road (Post Mile 4.182):									
11/01/04-10/31/07	22	0	6	0	0.47	1.74	0.005	0.61	1.50
Westbound on-ramp from San Pablo Dam Road (Post Mile 4.224):									
11/01/04-10/31/07	4	0	3	0	0.2	0.27	0.002	0.32	0.80
Westbound off-ramp to San Pablo Dam Road (Post Mile 4.477):									
11/01/04-10/31/07	14	0	5	0	0.58	1.63	0.005	0.61	1.5
Eastbound on-ramp from San Pablo Dam Road (Post Mile 4.583):									
11/01/04-10/31/07	4	0	1	0	0.1	0.38	0.002	0.32	0.80
Westbound on-ramp from El Portal Drive (Post Mile 4.747):									
11/01/04-10/31/07	6	0	2	0	0.21	0.64	0.002	0.32	0.80
Eastbound off-ramp to El Portal Drive (Post Mile 5.148):									
11/01/04-10/31/07	11	0	1	0	0.12	1.33	0.005	0.61	1.5
Eastbound on-ramp from El Portal Drive (Post Mile 5.442):									
11/01/04-10/31/07	4	0	0	0	0	0.38	0.002	0.32	0.80
Westbound off-ramp to El Portal Drive (Post Mile 5.449):									
11/01/04-10/31/07	15	1	3	0.106	0.42	1.58	0.005	0.61	1.50

Source: Caltrans 2008a

* F+I = Fatal plus injury accident rate

The accident rates listed in Table 1-2 are below the statewide average, with the exception of the eastbound and westbound off-ramps to San Pablo Dam Road and the westbound off-ramp to El Portal Drive. The rates on these ramps are slightly above the State average. According to the TASAS data, rear-end collisions generally account for the majority of accidents.

Within the project limits, the San Pablo Dam Road Overcrossing provides pedestrian access across I-80, but the surrounding area lacks connecting pedestrian facilities. For example, residents of neighborhoods in the area west of I-80 often walk to the Princeton Plaza shopping center on San Pablo Dam Road east of the overcrossing. While the San Pablo Dam Road Overcrossing has sidewalks on both sides of the structure, there is no sidewalk on the north side of San Pablo Dam Road east of the

structure and no marked pedestrian crossing on the north side of the intersection of the eastbound I-80 on- and off-ramps and San Pablo Dam Road. In public meetings, residents have expressed concern over the confusion and delay caused by this lack of complete pedestrian access through the project area, as well as concern for the safety of pedestrians crossing the interchange. Finally, the sidewalks in the project area are narrower than the City of San Pablo standard of seven feet, and sidewalks on the San Pablo Dam Road Overcrossing do not meet American Disabilities Act (ADA) requirements.

Bicycle access in the interchange area is also inadequate. San Pablo Dam Road from San Pablo Avenue to El Portal Drive, including the overpass of I-80, is a designated bicycle route in the MTC's Proposed Regional Bikeway System, which has been adopted by the City of San Pablo. This route is classified as a Class III bikeway, where cyclists share the road with vehicles. However, the traffic volume at the interchange presents safety concerns for bicyclists sharing lanes with vehicles. In addition, the five-way intersection at San Pablo Dam Road, the eastbound I-80 on- and off-ramps, and Amador Street constrains bicycle traffic because of high vehicle traffic volumes and roadway geometrics. The San Pablo Dam Road westbound left-turn movement to southbound Amador Street is not allowed. However, bicyclists have a tendency to cut through the opposing traffic to make this movement.

1.2.2.2. Roadway Deficiencies

The San Pablo Dam Road Overcrossing is skewed to the north to avoid further penetration of the China Slide on the east side of the road and I-80 (Figure 1-4). As a result, the angle of the intersection of San Pablo Dam Road and the terminus of the I-80 eastbound off-ramp is less-than-standard.

The existing San Pablo Dam Road Overcrossing has a clearance of 14 feet and eight inches, which does not meet the minimum vertical clearance requirement of 16 feet and nine inches (*Highway Design Manual*, Section 309.2, Caltrans 2008b). Additional space for shoulders is available on I-80 under the existing overcrossing.

The San Pablo Dam Road Overcrossing is two lanes in each direction. Both the westbound and eastbound lane configurations consist of a through lane and a through left-turn option lane that allows access to eastbound and westbound I-80. The left-turn pockets are not long enough to contain the volume of traffic accessing I-80 during peak traffic hours, resulting in traffic backups in both directions. During peak commute hours, westbound traffic on San Pablo Dam Road often backs up for 0.25 mile to

Morrow Drive. Eastbound traffic on San Pablo Dam Road can back up, blocking the intersections at Contra Costa and Ventura Avenues.

Amador Street intersects San Pablo Dam Road immediately adjacent to the eastbound I-80 off-ramp, forming a five-way intersection that can confuse motorists on westbound San Pablo Dam Road trying to locate the westbound I-80 on-ramp. The San Pablo Dam Road eastbound off-ramp terminus and Amador Street at San Pablo Dam Road do not have sufficient space between them. Therefore, left-turn movements from westbound San Pablo Dam Road to southbound Amador Street are not permitted at this intersection. This interferes with the ability of residents along Amador Street to access commercial areas along San Pablo Dam Road east of I-80 such as the Princeton Plaza Shopping Center, and often forces local traffic to use the freeway for local trips.

The I-80/El Portal Drive Interchange east of San Pablo Dam Road is a partial interchange with an isolated westbound I-80 on-ramp located only about 715 feet from the westbound I-80 off-ramp at San Pablo Dam Road. Based on design standards set forth in the *Highway Design Manual* (Caltrans 2008b), traffic volumes on the I-80 westbound off-ramp to San Pablo Dam Road are high enough to require a two-lane exit with a 1,300-foot auxiliary lane.

The westbound I-80 off-ramp at McBryde Avenue to the west of San Pablo Dam Road is also isolated. The weaving distance between this off-ramp and the westbound I-80 on-ramp at San Pablo Dam Road is only about 970 feet, which is less than the 1,600-foot-long standard weaving length recommended between interchanges. A longer weaving length allows more time and distance for drivers to safely and efficiently change lanes or merge as they exit or enter the freeway.

1.2.2.3. Independent Utility and Logical Termini

As originally proposed and funded, the I-80/San Pablo Dam Road Interchange Project focused on improving the capacity of the interchange structure and ramps to accommodate existing and future traffic demand and growth. The initial limits for alternative improvements considered in the PSR/PDS were immediately east and west of the interchange on- and off-ramps (Post Miles 4.0 to 4.8).

Expanding the project limits to the adjacent McBryde Avenue and El Portal Drive interchanges on I-80 allowed evaluation of a greater range of options and identification of the proposed improvements that meet the requirements of independent utility and logical termini. Expanding the project limits also reduces the potential that future changes might still be necessary to achieve the purpose and need. The eastern project

limit at El Portal Drive, where the isolated westbound on-ramp would be relocated and consolidated with the existing interchange, allows inclusion of the proposed westbound auxiliary lane that improves (lengthens) the available weaving distance. Extending the western project limit to McBryde Avenue accommodates the proposed closure of the westbound freeway off-ramp and provides a frontage road for freeway drivers to connect to McBryde Avenue. (The McBryde Avenue off-ramp would be eliminated to increase the distance between interchanges, but drivers would be able to access McBryde Avenue by exiting at westbound San Pablo Dam Road and continuing on the frontage road.) In summary, the proposed expanded limits avoid restricting consideration of the more effective improvements that were included in the project, allows evaluation of environmental conditions on a broad scope, and are usable or effective if no other improvements are made to these segments of I-80 or San Pablo Dam Road.

1.3. Project Description

This section describes the proposed project and the design alternatives that were developed by a multidisciplinary team to achieve the project's purpose and need while avoiding or minimizing environmental impacts. The alternatives are the Lanes Added Alternative (Alternative 1), the Tight Diamond Alternative (Alternative 2), and the No Build Alternative.

The project limits are a 1.47-mile segment of I-80 between McBryde Avenue and El Portal Drive (Post Miles 3.8 to 5.3) in the City of San Pablo and unincorporated Contra Costa County. Within the project limits, the I-80/San Pablo Dam Road Interchange consists of a four-lane overcrossing with diagonal on-ramps and off-ramps serving eastbound and westbound I-80. The McBryde Avenue and El Portal Drive interchanges lie to the west and east, respectively, of San Pablo Dam Road. The purpose of the project is to improve traffic operations and bicycle/pedestrian access at the I-80/San Pablo Dam Road Interchange.

1.3.1. Project Alternatives

Both build alternatives include modifications to the McBryde Avenue, San Pablo Dam Road, and El Portal Drive interchanges. The project elements are the same for both alternatives except at the San Pablo Dam Road Interchange. In the Lanes Added Alternative, the existing four-lane overcrossing at San Pablo Dam Road would be replaced with a new seven-lane bridge on the existing alignment (Figure 1-6). In the

Tight Diamond Alternative, the existing San Pablo Dam Road Overcrossing would also be replaced with a six-lane bridge. However, in this alternative, the new overcrossing would be further skewed to the north to separate the Amador Street and eastbound I-80 on-ramp intersections with San Pablo Dam Road in accordance with minimum design standards and to avoid encroaching into the geologically unstable hillside (China Slide) to the east (Figure 1-7). The bridge replacement design would also meet the current Caltrans vertical clearance standards. In the No Build Alternative, no modifications would be made to I-80 or the interchanges at El Portal Drive, San Pablo Dam Road, and McBryde Avenue. The preliminary project plans for the build alternatives are provided in Appendix A.

1.3.1.1. Common Design Features of the Build Alternatives

Freeway On-Ramp and Off-Ramp Changes

The existing El Portal Drive on-ramp to westbound I-80, which is isolated from the rest of the El Portal Drive interchange, would be closed and the pavement removed. A barrier along El Portal Drive would be installed across the on-ramp, which could involve extending the existing El Portal Drive soundwall. A new westbound I-80 on-ramp would be constructed approximately 2,000 feet north of the existing on-ramp, creating a full diamond interchange at El Portal Drive. The on-ramp would connect to a new westbound auxiliary lane from El Portal Drive to the San Pablo Dam Road Interchange, roughly doubling the weaving distance for motorists entering and exiting westbound I-80 between El Portal Drive and San Pablo Dam Road (Figure 1-3).

The existing McBryde Avenue off-ramp from westbound I-80 would also be closed. Motorists wishing to reach McBryde Avenue from westbound I-80 would exit at San Pablo Dam Road and continue through the interchange on a new one-way frontage road connecting to McBryde Avenue (Figure 1-3). The frontage road would diverge from the westbound I-80 on-ramp at San Pablo Dam Road.

Pedestrian and Bicycle Facilities

The project includes pedestrian sidewalks and crosswalks on both sides of San Pablo Dam Road across I-80 and the on- and off-ramps. Sidewalks and crosswalks would be installed on the north side of San Pablo Dam Road east of eastbound I-80, which currently lacks pedestrian facilities across the eastbound on-ramp. With the project, pedestrians would be able to walk on either side of San Pablo Dam Road between the commercial area on the west side of I-80 to east of Amador Street.

There is a pedestrian overcrossing of I-80 between San Pablo Dam Road and McBryde Avenue (Figure 1-3). This overcrossing connects the Riverside Elementary School (located at 1300 Amador Street, at Riverside Avenue), adjacent residential neighborhoods, and Wildcat Canyon Regional Park on the east side of the freeway to Riverside Avenue on the west side of the freeway. The overcrossing is located east of the terminus of Riverside Avenue and is connected to the road by a paved pedestrian walkway. Riverside Elementary School students cross Amador Street to reach the overcrossing. This overcrossing would be rebuilt north of its current location as a longer structure to cross the new frontage road and the I-80 on-ramp proposed on the west side of I-80. The proposed design option would extend this pedestrian structure to cross Amador Street on the east side of I-80, allowing students to avoid Amador Street traffic. This design option would require an easement or transfer agreement for a portion of the school parking lot at Riverside Avenue and Amador Street to construct a switchbacked pedestrian ramp.

Class II bicycle lanes would be accommodated in the shoulders of the San Pablo Dam Road Overcrossing of I-80.

Ramp Metering Systems

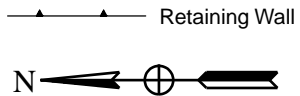
Meter signals and equipment would be installed at both the westbound and eastbound I-80/San Pablo Dam Road on-ramps and the El Portal Drive on-ramp to westbound I-80.

Right-of-Way Requirements

Some full and partial property acquisitions would be necessary, as well as temporary easements for construction access and staging.

Two residential properties on Rollingwood Drive and parts of two adjacent residential properties would be acquired to accommodate the new westbound I-80 on-ramp at El Portal Drive. Partial property acquisitions could also be necessary at the backyards of four properties on Avon Lane, but the large size of the backyard lots and minimal property requirements at this location may avoid full take of the properties. The frontage road to McBryde Avenue and associated retaining walls could require acquisition of three residential properties (five units total) on Humboldt Avenue east of Riverside Avenue. The project could require acquisition of two single-family homes, an apartment building, and a rental self-storage facility on Riverside Avenue.

Temporary construction easements could be needed along El Portal Drive and at properties along San Pablo Dam Road west of I-80. The increased elevation of the San Pablo Dam Road Overcrossing over I-80 would require reconstruction of the road

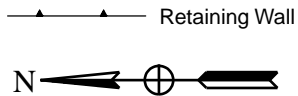


26815671

I-80/San Pablo Dam Road
Interchange Improvement

Lanes Added Alternative

Figure
1-6



26815671

I-80/San Pablo Dam Road
Interchange Improvement

Tight Diamond Alternative

Figure
1-7

approaching the overcrossing. Consequently, the elevations of side streets (Ventura Avenue) and adjacent parking lot driveways would be increased slightly to match the profile height of the new overcrossing approach. Retaining walls would also be constructed or rebuilt along the parcels adjacent to the west side of the San Pablo Dam Road Overcrossing. The existing recreational vehicle storage business along San Pablo Dam Road just east of I-80 is on land leased from the Department. The lease would be terminated, and the storage business operators would have to remove or relocate their operations.

At Riverside Elementary School, on Amador Street at Riverside Avenue, a permanent easement or transfer agreement for a portion of the parking lot would be necessary for reconstruction of the pedestrian overcrossing. This would result in a loss of some of the school's parking lot.

Drainage/Utilities

Drainage from project facilities would be conveyed to the existing drainage system on I-80. To meet freeway standards, some existing gas, sanitary sewer, electrical, cable, telephone, and recycled water utilities, including a 36-inch water line and a 15-inch sewer line, within the proposed right-of-way for the project would need to be relocated.

Creek/Stream Crossings

The project crosses Wildcat Creek between San Pablo Dam Road and McBryde Avenue and San Pablo Creek at the existing El Portal Drive on-ramp to westbound I-80 (Figure 1-3). Both creeks are in culverts where they cross existing freeway facilities. No structures would be placed within the creeks. At San Pablo Creek, the pavement for the existing El Portal Drive on-ramp would be removed. No construction would take place in the creek or on its banks. The creek would be designated and flagged as an environmentally sensitive area (ESA) to exclude construction workers and equipment.

The one-way frontage road to McBryde Avenue and the auxiliary lane to the westbound I-80 on-ramp from San Pablo Dam Road would cross Wildcat Creek adjacent to the existing I-80 culvert. Wildcat Creek is in a relatively deep, vegetated channel at this location, with steep banks rising from the creek to the top of the banks. The proposed frontage road crossing would be placed on a bridge structure at the top of the creek bank. No bridge construction would take place within the creek waters, and existing wingwalls would remain unaffected. The bridge structure is anticipated to clear-span the creek (meaning that no piers or footings would be placed within the creek) but would require installation of abutments at the top or outside of the creek banks.

Retaining Walls and Soundwalls

Several retaining walls would be constructed for the new I-80 westbound on-ramp at El Portal Drive, the westbound auxiliary lane, and the one-way frontage road to McBryde Avenue. A retaining wall would be built along the shoulder of westbound I-80 at the new El Portal Drive on-ramp because of the steep grade between the freeway and the proposed new ramp. To minimize encroachment onto existing properties, a retaining wall would be constructed on the west side of the new I-80 westbound off-ramp at San Pablo Dam Road and the McBryde Avenue frontage road.

The Lanes Added Alternative would partially reconstruct a retaining wall along the shoulder of the new eastbound I-80 on-ramp. The Tight Diamond Alternative would construct retaining walls (1) between Amador Street and the new eastbound I-80 off-ramp from approximately Alpine Road to the location of the existing Amador Street/San Pablo Dam Road intersection, and (2) along the south side of the proposed extension of Amador Street to its intersection with San Pablo Dam Road.

Soundwalls already exist along the majority of both sides of the freeway and ramps within the project limits. Portions of these walls would require relocation to accommodate the project, and the noise evaluation for this project has preliminarily identified areas where additional soundwalls may also be appropriate. Noise impacts and the evaluation of noise abatement measures within the project limits are discussed in Section 2.13. Replacement soundwalls and soundwalls that meet noise abatement criteria have been preliminarily identified at the following locations:

- A segment of westbound I-80 where it parallels El Portal Drive. Three segments of the existing 16-foot-high wall would be reconstructed to accommodate widening of I-80 for the proposed auxiliary lane. Approximately 300 feet of the easternmost portion of this wall would be removed to allow for the merge of the proposed westbound El Portal Drive on-ramp. An 8-foot-high masonry wall planned for 2009 along the western side of El Portal Drive will be constructed independent of the proposed I-80/San Pablo Dam Road Interchange improvements. The wall would be extended as part of the I-80/San Pablo Dam Road Interchange Project.
- Along westbound I-80 from the westbound San Pablo Dam Road on-ramp to west of Wildcat Creek, where it would connect with an existing soundwall that extends to McBryde Avenue. This wall would accommodate construction of the proposed frontage road and bridge over San Pablo Creek. The portion of this soundwall fronting the existing self-storage business would not be constructed if acquisition of the self-storage business property can be mostly avoided during right-of-way.

Construction Staging

During project construction, temporary traffic disruptions may be required to conduct the planned construction activities. During nonpeak periods (mid-day and evening through early morning), temporary lane closures, detours, and lane shifts on I-80 and San Pablo Dam Road may be required to replace the San Pablo Dam Road Overcrossing and the Riverside Avenue pedestrian overcrossing. Temporary closures of existing interchange ramps may also be necessary during construction. Lane closures would be primarily at night but could also occur during daytime nonpeak hours for specific construction activities. Impacts to pedestrians and bicyclists, as well as access to local developments, would be carefully considered in the traffic handling and stage construction plans during the final design phase. During peak commute periods, all through traffic lanes on I-80 would remain open, and at least four lanes would remain open on San Pablo Dam Road. Construction strategies would be employed in the construction zone to ensure safe, efficient operations for construction workers and motorists.

1.3.1.2. Unique Features of the Build Alternatives

Lanes Added Alternative

As stated in Section 1.2.2.2, the vertical clearance of the existing San Pablo Dam Road Overcrossing does not meet the minimum State design requirement for freeway bridges, and no space is available beneath the overcrossing for shoulders on I-80. Therefore, the Lanes Added Alternative replaces the existing overcrossing with a new structure on the same alignment that would accommodate six lanes of traffic, meet the minimum vertical clearance requirement, and allow for construction of 10-foot shoulders on I-80. The two added lanes would enable left-turn movements from the overcrossing to both the eastbound and westbound I-80 on-ramps. This alternative would also provide three through lanes approaching the San Pablo Dam Road Overcrossing of I-80 in both the northbound and southbound directions (Figure 1-6).

Tight Diamond Alternative

The Tight Diamond Alternative would also replace the existing San Pablo Dam Road Overcrossing with a six-lane bridge that has a left-turn lane for both the eastbound and westbound I-80 ramps, minimum vertical clearance, and shoulders for I-80. However, in this alternative, the new overcrossing would be curved to allow relocation of the Amador Street/San Pablo Dam Road intersection without encroaching into the geologically unstable hillside to the east. Amador Street would be relocated by 410 feet to the north and San Pablo Dam Road on the east side of I-80 would be realigned to the west to avoid intrusion into the geologically unstable hillside (Figure 1-7).

Under this alternative, a left-turn lane would be added from westbound San Pablo Dam Road to Amador Street. The eastbound I-80 off-ramp would be lined up with the eastbound I-80 on-ramp to create a typical tight diamond interchange.

1.3.2. Traffic Systems Management (TSM) and Traffic Demand Management (TDM) Alternatives

TSM strategies consist of actions that increase the efficiency of existing facilities; they increase the number of vehicle trips a facility can carry without increasing the number of through lanes. Although TSM measures alone could not satisfy the purpose and need of the project, the following TSM measures have been incorporated into both of the build alternatives: bike lanes and pedestrian facilities, an auxiliary lane, and a frontage road.

TDM measures focus on regional strategies for reducing the number of vehicle trips and vehicle miles traveled as well as increasing vehicle occupancy. The project includes High Occupancy Vehicle (HOV) bypass lanes and ramp metering on the eastbound and westbound on-ramps at the I-80/San Pablo Dam Road Interchange to help encourage carpooling.

1.3.3. Project Funding, Estimated Cost, and Schedule

This project is included in the Metropolitan Transportation Commission's (MTC) most recent RTP, the *Transportation 2035 Plan for the San Francisco Bay Area* (MTC 2009; RTP ID No. 22360). It is also included in the 2009 Transportation Improvement Program (TIP) adopted by MTC on May 28, 2008 (TIP ID No. CC-070035) and in TIP Amendment 09-06, approved on May 29, 2009. Project approval is anticipated in late 2009. Design plans, specifications, and right-of-way acquisitions are expected to be completed in 2012. Project construction is anticipated to begin in 2015.

The project is also included in the West Contra Costa County Action Plan 2000 Update (WCCTAC 2000), Countywide Comprehensive Transportation Plan Update (CCTA 2004), and Contra Costa Congestion Management Program 2007 (CCTA 2007a). Improvement of the I-80/San Pablo Dam Road Interchange was identified as an important project for funding in the Measure C Renewal public workshops conducted by the Contra Costa Transportation Authority (CCTA) during April and May 2003. Measure C, passed in 1998, authorized a one-half cent sales tax to fund transportation improvements in Contra Costa County. Partial project funding was subsequently added in Measure J, which extended the one-half cent sales tax for 25 years starting in July 2009, and in the West County Subregional Traffic Mitigation Fee Program.

The following lists the preliminary estimated costs for the project, defined by alternative:

Alternative 1 – Lanes Added:	
Roadway:	\$47,019,000
Structure:	\$13,175,000
Escalation to year 2013 @ 2%/yr	\$ 9,587,000
Right-of-Way:	<u>\$20,768,000</u>
Construction Total:	\$90,549,000
Project & Env. Approval	\$ 2,500,000
Final Design (PS&E) @ 12%	\$ 8,374,000
Right-of-way	\$ 1,000,000
Construction Admin @ 12%	\$ 8,374,000
Support Total:	\$20,248,000
ALTERNATIVE 1 TOTAL:	\$110,797,000
Alternative 2 – Tight Diamond:	
Roadway:	\$47,682,000
Structure:	\$14,730,000
Escalation to 2013 @ 2%/yr	\$ 9,941,000
Right-of-Way:	\$20,672,000
Construction Total:	\$93,025,000
Project & Env. Approval	\$ 2,500,000
Final Design (PS&E) @ 12%	\$ 8,682,000
Right-of-way	\$ 1,000,000
Construction Admin @ 12%	<u>\$ 8,682,000</u>
Support total:	\$20,864,000
ALTERNATIVE 2 TOTAL:	\$113,889,000

1.3.4. No Build Alternative

The No Build Alternative would make no improvements to the I-80/San Pablo Dam Road Interchange or the adjacent interchanges. The existing constraints at this interchange and along the segment of I-80 between El Portal Drive and McBryde Avenue would remain. Traffic demand along this corridor and at these interchanges will continue to increase, as described in Section 1.2.2.1, and the existing deficiencies described in Section 1.2.2.2 will continue to constrain traffic and increase congestion. The No Build Alternative does not meet the purpose and need of the project because it would not reduce traffic congestion or eliminate existing traffic weaving conditions that contribute to congestion. The No Build Alternative would not improve pedestrian or bicycle access through the I-80/San Pablo Dam Road Interchange.

1.4. Comparison of Alternatives

The two build alternatives are identical except for the angle of the San Pablo Dam Road bridge over I-80 and the configuration of the Amador Street intersection and connecting eastbound on- and off-ramps (on the east side of I-80, at San Pablo Dam Road). In the remainder of the project limits, the proposed changes are the same for both alternatives, including at El Portal Drive, from El Portal Drive to the San Pablo Dam Road Interchange on- and off-ramps, the Riverside Avenue and school pedestrian overcrossing, proposed frontage road, McBryde Avenue off-ramp, Wildcat Creek bridge, soundwalls, and retaining walls. The primary differences in the two alternative designs are summarized in Table 1-3.

Table 1-3 Comparison of the Differences Between the Build Alternatives

Design Component	Lanes Added (Alternative 1)	Tight Diamond (Alternative 2)
I-80/San Pablo Dam Road Bridge	<ul style="list-style-type: none"> Proposed Alternative 1 bridge alignment would approximately follow the existing San Pablo Dam Road (and existing bridge) alignment. San Pablo Dam Road would remain adjacent to existing China Slide. Maintaining a similar alignment to the existing bridge may also simplify construction. 	<ul style="list-style-type: none"> Bridge design “skews” at an angle to maximize distance between San Pablo Dam Road and the China Slide area in the slope to the east. This reduces potential for increased slope failure.
Amador Street/San Pablo Dam Road Intersection and I-80/San Pablo Dam Road Eastbound Off-ramp	<ul style="list-style-type: none"> The Amador Street/San Pablo Dam Road intersection would remain adjacent to the I-80 eastbound off-ramp. There would continue to be five “legs” or connections at this intersection, requiring signal timing to separate the off-ramp traffic from adjacent Amador Street traffic. There would be no westbound San Pablo Dam Road left-turn movement at Amador Street, because of the close proximity of Amador Street to the eastbound off-ramp. As a result, westbound San Pablo Dam Road drivers cannot directly access Amador Street. 	<ul style="list-style-type: none"> Realignment of the bridge structure (see above) allows relocation of the Amador Street/San Pablo Dam Road intersection away from the I-80 eastbound off-ramp. Separation of these two intersections would improve traffic operations and safety at these intersections. Extending Amador Street to the east and separating its intersection on San Pablo Dam Road away from the eastbound off-ramp would allow left-turn movements onto Amador Street from westbound San Pablo Dam Road. This traffic movement is infeasible with the current intersection design and Alternative 1.
I-80 Eastbound On-ramp	<ul style="list-style-type: none"> The eastbound on-ramp would not “line up” across from the off-ramp. Intersection turning movements would not be aligned in comparison with most four-way intersections. 	<ul style="list-style-type: none"> The on- and off-ramps would line up. The intersection design would be relatively more familiar to drivers. The eastbound San Pablo Dam Road to I-80 on-ramp movement would have a separate short connector ramp, with a yield where it merges with the on-ramp.

After the public circulation period, all comments will be considered, and the Department will select a preferred alternative and make the final determination of the

project's effect on the environment. In accordance with CEQA, if no unmitigable significant adverse impacts are identified, the Department will prepare a Mitigated ND. Similarly, if the Department determines the action does not significantly impact the environment, the Department, as assigned by FHWA, will issue a Finding of No Significant Impact (FONSI) in accordance with NEPA.

1.5. Alternatives Considered But Eliminated From Further Discussion

Development of the proposed project included consideration of alternative interchange designs as well as options to address specific elements of the project design. The alternatives and options were developed and evaluated with respect to the project's purpose and need, potential environmental and community impacts, and cost. The following summarizes alternatives and design options that were not advanced for further evaluation.

The May 2004 PSR/PDS for the I-80/San Pablo Dam Road Interchange Project presented three build alternatives: Alternative 1—Lanes Added, Alternative 2—Tight Diamond, and Alternative 3—Quad Two-Way. Alternative 1 would replace the four-lane I-80 overcrossing at San Pablo Dam Road with a new six-lane overcrossing. Alternative 2 would also replace the four-lane overcrossing with a six-lane structure, as well as realign San Pablo Dam Road at the interchange and relocate the Amador Street/San Pablo Dam Road intersection. Alternative 3 would change the existing five-way interchange on the east side of I-80 with two four-way intersections and add another overcrossing north of the existing structure. Additional traffic modeling and analysis was performed following completion of the PSR/PDS. As a result, Alternative 3 was eliminated because signal timing at the San Pablo Dam Road westbound off-ramp would function at an unacceptable level of service. This alternative would not meet the purpose and need of reducing traffic congestion at the interchange.

Alternative 1 was refined to eliminate three of the design exceptions by realigning San Pablo Dam Road. Alternative 2 was refined to realign San Pablo Dam Road further north to avoid the China Slide area, an active slide on the east side of I-80 that is considered a design constraint because excavation may cause further slope failure.

Although Alternatives 1 and 2 had been refined, two design constraints remained that would result in unacceptable future traffic operations on I-80 and nearby ramps. Westbound I-80 has insufficient distance between the El Portal Drive on-ramp and the

San Pablo Dam Road off-ramp to allow for the weaving of vehicles entering and exiting the freeway. The same constraint exists on westbound I-80 between the San Pablo Dam Road on-ramp and the McBryde Avenue off-ramp. These interchange ramps are too close to accommodate the predicted future traffic growth. The limits of the project were therefore extended east to the El Portal Drive interchange and west to the McBryde Avenue interchange. In addition, a range of design options were considered that could accompany the reconstruction of the I-80/San Pablo Dam Road Interchange to improve future traffic conditions on this freeway segment. Table 1-4 lists the ten design concepts evaluated to address weaving length and other issues within this freeway segment.

Table 1-4 Design Concepts Evaluated During Alternative Development

Concept	Description
1	Hook ramp at San Pablo Dam Road eastbound off-ramp
2	Collector-distributor (CD) road
3	Braided ramp at El Portal Drive
4	Closure of the El Portal Drive westbound on-ramp
5	Relocation of isolated El Portal Drive westbound on-ramp
6	Relocation of El Portal Drive
7	Relocation of McBryde Avenue off-ramp to Solano Avenue
8	Addition of an auxiliary lane on westbound I-80
9	Frontage road
10	Braided ramp at McBryde Avenue

The concepts listed in Table 1-4 include ramp approach and configuration changes at the I-80/El Portal Drive and I-80/McBryde Avenue interchanges. Each of the ten concepts was evaluated for ability to meet acceptable traffic operating conditions and feasibility. Concepts 5 and 9 were identified as the most feasible and beneficial options that, combined with the refined Alternatives 1 and 2, would best meet the purpose and need of the project. Alternatives 1 and 2 combined with design concepts 5 and 9 are therefore evaluated in this IS/EA.

A value analysis (VA) study was performed for the project in September 2007 (Advantage Management Solutions 2007). The VA study analyzed conceptual plans to determine whether phased short-term solutions could reduce project costs without compromising the purpose and need or encroaching on design constraints such as the China Slide area. The study resulted in the development of three VA Alternatives: a separate frontage road from San Pablo Dam Road (VA Alternative 1.0), a flyover tie-in ramp from westbound San Pablo Dam Road to westbound I-80 (VA Alternative 2.0), and modification of the I-80 ramps at El Portal Drive (VA Alternative 3.0). The VA team determined that VA Alternative 1.0 would require a significant amount of additional right-of-way and related

costs, VA Alternative 2.0 would cross the Hayward Fault, and VA Alternative 3.0 would increase traffic at the San Pablo Dam Road on- and off-ramps and create possible vertical clearance problems at the I-80 westbound intersection. All of the VA alternatives were considered unacceptable and were rejected.

1.6. Permits and Approvals Needed

Table 1-5 summarizes the regulatory permits and approvals needed for the project.

Table 1-5 Regulatory Permits and Approvals

Agency	Permit or Approval	Status or Planned Action
U.S. Fish and Wildlife Service (USFWS)	Consultation for threatened and endangered species under Section 7 of the Federal Endangered Species Act.	<ul style="list-style-type: none"> California red-legged frog assessment submitted to USFWS in November 2007. Per USFWS, species presence or absence in project area cannot be determined without protocol-level surveys. Department determined that surveys, if completed, might still prove inconclusive with respect to determination of species presence. Biological Assessment prepared for USFWS and submitted to USFWS 9-10-08.
National Marine Fisheries Service (NOAA Fisheries)	Consultation for threatened and endangered species under Section 7 of the Federal Endangered Species Act.	<ul style="list-style-type: none"> Consultation initiated in July 2007 with submittal of a Biological Assessment to NOAA Fisheries on 9-9-08. No comments received, and consultation is concluded.
U.S. Army Corps of Engineers (USACE), San Francisco District	None.	<ul style="list-style-type: none"> Section 404 waters of the United States at San Pablo and Wildcat creeks are avoided by the project design. The project will include fencing and Environmentally Sensitive Area designation to prevent any construction or indirect effects within the lower portions of creek channels that might be jurisdictional waters.
State Historic Preservation Officer (SHPO)	Concurrence on finding that the project does not affect historic resources and Section 106 requirements are satisfied.	<ul style="list-style-type: none"> SHPO concurred with the findings of the cultural resources studies on 10-2-08.
California Department of Fish and Game (CDFG)	1602 Agreement for Lake and Streambed Alteration Permit.	<ul style="list-style-type: none"> Permit application will be submitted during final design phase.
San Francisco Bay Regional Water Quality Control Board (RWQCB)	Section 401 Water Quality Certification and National Pollutant Discharge Elimination System (NPDES) approval for work greater than one acre.	<ul style="list-style-type: none"> Permit application will be submitted during final design phase.
City of San Pablo	Coordination with the City	<ul style="list-style-type: none"> Various phases of project development during final design phase.



Chapter 2. Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures

This chapter addresses the environmental impacts of the proposed project alternatives as well as identified avoidance and mitigation measures that will be carried out as part of the project.

The environmental resource discussions presented in this chapter are based on the technical studies cited at the beginning of each discussion and listed in Chapter 7. An evaluation of the proposed project consistent with CEQA checklist criteria is provided in Appendix B. Avoidance, minimization, and/or mitigation measures for each of the environmental resource areas are discussed in the following sections and summarized in Appendix F.

As part of the scoping and environmental analysis for the project, the following environmental issues were considered but no adverse impacts were identified. Consequently, these issues will not be discussed further.

- Farmlands and Timberlands – No farmlands or timberlands exist in or near the project limits.
- Paleontology – A document review conducted for the area of the proposed project found no indication that paleontological resources are present. No evidence of paleontological resources was observed during field studies along the project alignment.

Human Environment

2.1. Land Use

The following discussion is based on the Community Impact Assessment completed for the proposed project (URS 2008b).

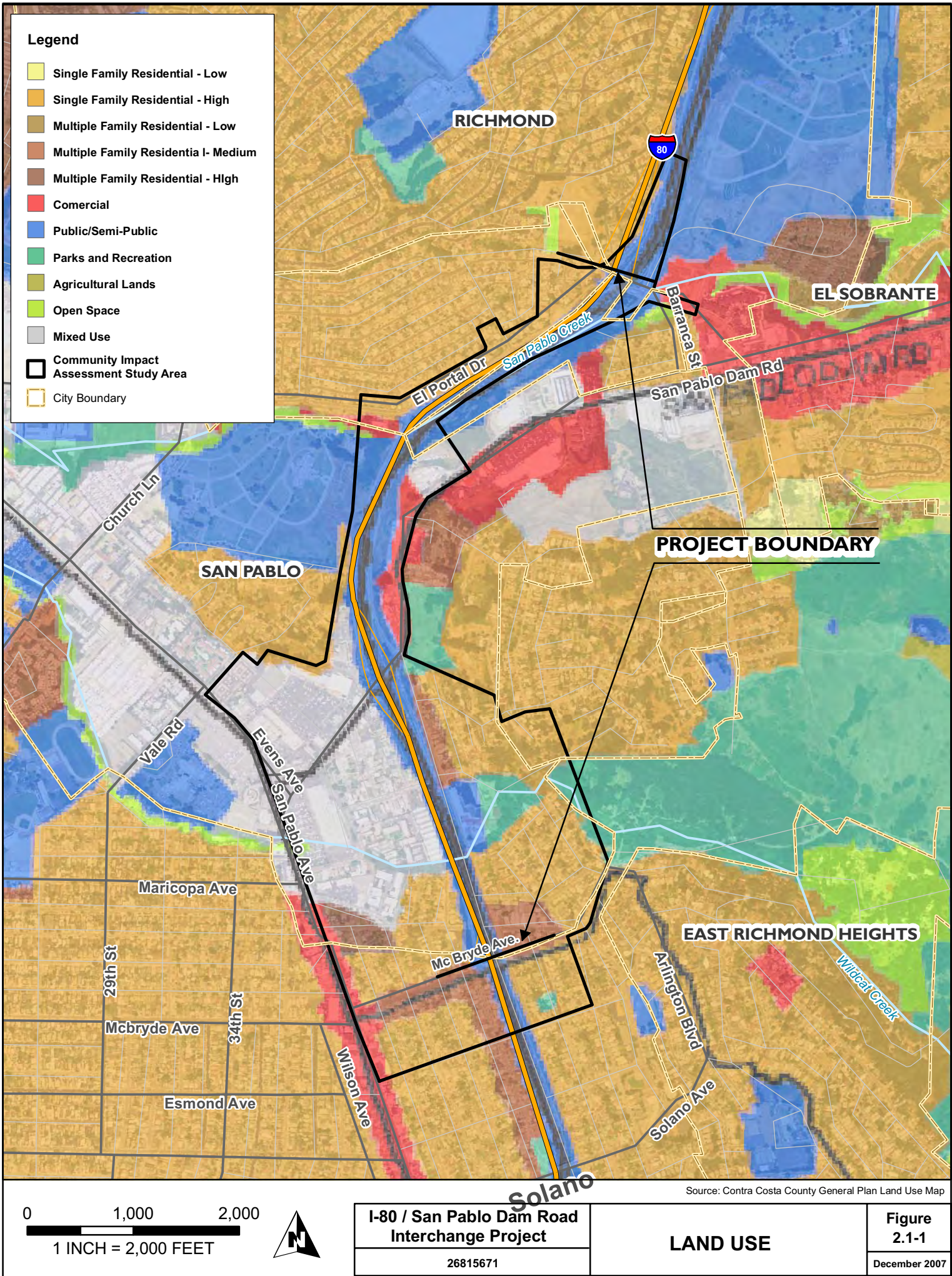
2.1.1. Existing and Future Land Use

Contra Costa County's land uses range from urban to rural. In the West and Central County areas, including the study area, primary uses in suburban cities and towns are residential, commercial, and industrial (Figure 2.1-1). The I-80 right-of-way and St. Joseph Cemetery to the west of I-80 near the San Pablo Dam Road Interchange are designated for public/quasi-public (County) and institutional (San Pablo) uses. Single-family and multi-family residential uses are present in unincorporated Contra Costa County at the north end of the study area, in San Pablo in the vicinity of the I-80/San Pablo Dam Road Interchange and McBryde Avenue, and in Richmond around McBryde Avenue. Commercial land uses are concentrated around the I-80/San Pablo Dam Road Interchange and San Pablo Avenue in the study area, although commercial uses are also present along El Portal Drive west of the I-80 westbound on-ramp. Institutional uses include Riverside Elementary School on Amador Street.

2.1.1.1. Commute/Travel Patterns and Land Use Planning

I-80 is a major access route for interstate and intrastate traffic traveling to and from the Bay Area, as well as a major commuter route within the East Bay and between the East Bay and San Francisco. The I-80/San Pablo Dam Road Interchange provides regional and local access to I-80 from San Pablo Dam Road, San Pablo Avenue, and Amador Street in the City of San Pablo, serving as a gateway to the City of San Pablo from other communities in the East Bay.

Land use patterns greatly influence the movement of people. The distance people must travel to work and shop, and the type of transport they use, affects the transportation networks of cities and larger metropolitan areas, including within the study area. Lengthening commute time and increasing congestion throughout much of California has brought about the concept of a "jobs/housing balance" (Caltrans 1997a). The essence of this concept is to encourage people to live as close to where they work as possible.



Contra Costa County has adopted regional measures to help address the Bay Area's traffic congestion through land use planning, the intra-regional Bay Area Smart Growth Strategy, and the Regional Livability Footprint Project. Planning measures have included adoption of an urban limit line and voter passage of Measure C. The measure, known as Contra Costa County's "65/35 Land Preservation Standard," requires not less than 65 percent of land be preserved for parks, open space, agriculture, wetlands, and other nonurban uses (Contra Costa County 1990). The Smart Growth strategy addresses some land use and transportation policy solutions such as infill and higher-density, mixed-use development in urban core and older suburban neighborhoods that are near or adjacent to public transit. Pedestrian and bicycle-friendly neighborhoods are encouraged, as is development that addresses the need for a balanced mix of employment centers and appropriately priced housing. In 2004, county voters adopted Measure J, extending an existing half-cent sales tax for transportation project funding, but tied the funding to provisions that local agencies also adopt urban growth boundaries.

According to Association of Bay Area Government (ABAG) data on housing and jobs, the City of San Pablo has a job/housing ratio of 0.60 in 2007. This indicates that a number of residents must commute outside of the City to jobs. ABAG (2007) projects that this job/housing ratio will remain relatively constant into the future, reaching 0.64 by 2014.

2.1.1.2. Housing

The study area has a total of 3,690 housing units. Of these, 3,550 units were occupied in 2000, representing an average vacancy rate of 3.7 percent. According to the City of San Pablo, housing is split nearly 50/50 between owner occupied and rental units (CityData.com n.d.).

The median home age in San Pablo is 38 years. The median home value was \$488,200 in spring 2008. At this same time, 353 residential units were for sale in the City, of which about 70 percent (267) were single-family homes. Other residential units for sale included condominiums (49), multi-family residential units (25), and mobile homes (12) (Yahoo Real Estate 2008).

Because the City of San Pablo is an older developed city, most of the new housing stock in the future will come from redevelopment of land currently in use.

2.1.1.3. Development Trends

One of the community themes in the 1996 City of San Pablo General Plan (City of San Pablo 1996) is to: “Consolidate commercial uses into more competitive, better designed locations with integrated parking systems and a variety of high-quality social and gathering places at commercial centers to mature beyond the strip commercial development where the community can celebrate their community life.” This led to the creation of special districts in the City, with one of the goals being to make more use of sites with immediate freeway access.

The area to the west of I-80 is considered the Gateway District. This area is the focus of San Pablo’s efforts to attract more regional commercial opportunities. The San Pablo Towne Center at 2499 San Pablo Dam Road is one of the focal points of the Gateway District. Another recent development in the district is the Casino San Pablo (13255 San Pablo Avenue), which is a regional draw for entertainment dollars. Recently completed and planned projects within about three miles of the project show a mix of multi-family and single-family homes, and infrastructure and park projects (Table 2.1-1). An example is the Abella Paseo project, completed in 2006 on a 36-acre site that had previously been a shopping center. The site now contains 292 market-value units on 21 acres that include single-family homes, townhomes, and condominiums. No major projects were identified in the study area within unincorporated Contra Costa County.

2.1.2. Consistency with State, Regional, and Local Plans and Programs

2.1.2.1. Transportation Plans/Programs

The project’s status with respect to programming in the most recent Regional Transportation Plan and Transportation Improvement Program is described at the beginning of Chapter 1. Other local funding is described in Section 1.1.2.

2.1.2.2. Contra Costa County 2005–2020 General Plan

The Contra Costa County 2005–2020 General Plan establishes growth management policies that are intended to optimize land use and control urban sprawl (Contra Costa County 2005). The Plan includes urban and nonurban land uses within cities as well as unincorporated areas. The project falls entirely within developed areas of Contra Costa County. The project limits and surrounding community areas are well within the County’s urban limit line.

Table 2.1-1 Planned or Recently Completed Projects in the Study Area

Name	Distance from Project (miles)	Jurisdiction	Status	Proposed Uses
Abella Paseo	0.75	City of San Pablo	Completed 2006	Master Planned Community
Amador to San Pablo Dam Road Sidewalk Gap Closure	Overlaps	City of San Pablo	Planned/proposed; date not known	Pedestrian use
College Center Shops	0.80	City of San Pablo	Planned/proposed; date not known	Mixed commercial, service
Caprigo Construction	1.47	City of San Pablo	Completed	Mixed use
Contra Costa College Improvements Implementation Project	0.7	Contra Costa County	Planned/proposed; date not known	Campus plan improvements
Davis Park Master Plan	1.2	City of San Pablo	Planned/proposed; date not known	Adopt and implement park master plan improvements
El Paseo Family Apartments (Brookside Drive Family Housing)	1.30	City of San Pablo	Expected completion mid-2008	Affordable housing
El Portal Drive Gateway Streetscape	Overlaps	City of San Pablo/County	Expected completion in 2009	Pedestrian, landscaping, utility, and lighting improvements to El Portal Drive from Church Lane to I-80
El Portal School Site		City of San Pablo	Planned/proposed; date not known	Institutional, recreational park
Forest Green Estates	2.67	City of El Sobrante	Planned/proposed; date not known	Housing
Road 20/El Portal Drive Intersection Reconfiguration	0.5	City of San Pablo	Planned/proposed; date not known	Road 20 and El Portal Drive intersection will be reconfigured to eliminate the single lane from Road 20 to Church Lane
Rumrill Boulevard Bridge Replacement Project (PW-442)	1.3	City of San Pablo	Planned/proposed; date not known	Replace existing bridge over San Pablo Creek (1.3 miles downstream of I-80)
San Pablo Dam Seismic Upgrade	3.5	East Bay Municipal Utility District, in Contra Costa County	Construction began late 2008	Seismic upgrade of existing dam
Wanlass Park Improvements Project	1.1	City of San Pablo	Planned/proposed; date not known	Construction of park and educational center
Wildcat Creek Trail / Davis Park to 23rd Street	0.9	City of San Pablo	Planned/proposed; date not known	Construction of bike/pedestrian trail on north bank of Wildcat Creek
Wildcat / San Pablo Creeks Flood Control	Not defined	Mostly within City of San Pablo	Planned/proposed; date not known	Army Corps of Engineers completed flood improvements downstream of San Pablo. Second phase for channel improvements within San Pablo planned but not scheduled.

source: City of San Pablo 2008b and Governor's Office of Planning and Research, CEQAnet, accessed January 2009

2.1.2.3. San Pablo General Plan

As the City of San Pablo is an established community, much of the planning focus set forth in the General Plan is not on new growth but on maintaining and improving existing development. This translates into improving the physical environment with overarching community themes including improving neighborhood livability; consolidating commercial uses; establishing better pedestrian, transit, and traffic circulation; and replacing blighted development (City of San Pablo 1996).

The land use designations within the study area are consistent with local and regional long-term plans and goals. The San Pablo General Plan promotes the creation of districts within the city. Two of these districts abut San Pablo Dam Road on either side of I-80: the San Pablo Dam Road District to the east, and the Gateway District to the west. Land use policies in these districts encourage optimizing the use of freeway frontage sites, recognizing the contiguous relationship of the Gateway District to the regional transportation route (I-80), improving freeway accessibility to and from the San Pablo Dam Road District, and improving pedestrian access to San Pablo Dam Road.

2.1.2.4. Parks and Recreational Facilities

There are two large parks in the project region: Alvarado Park and Wildcat Canyon Regional Park. Alvarado Park is in the hills east of I-80 and Riverside Elementary School, and lies in the northern end of Wildcat Canyon Regional Park. The East Bay Regional Park District took over Alvarado Park from the City of Richmond in 1985. Most of the structures that once existed in this park area are gone, but extensive stonework (walls, light stands, and an arch bridge across Wildcat Creek) still exists. Most of the stonework was installed as part of a Works Progress Administration project during the Great Depression. As a result, Alvarado Park is included in the National Register of Historic Places. The park contains picnic and barbecue facilities and a playground.

Wildcat Canyon Regional Park comprises 2,430 acres along the Wildcat Creek watershed. The park contains an extensive trail system connecting to Tilden Regional Park. The East Bay Regional Park District plans to extend a trail along Wildcat Creek to the San Francisco Bay but has not yet set a date for construction. This park is not in the project area but is included due to its proximity to Alvarado Park and its potential to be connected by a new trail through the project area.

2.1.2.5. Schools and Public Services

The study area is in the West Contra Costa Unified School District, which serves more than 31,000 students. Riverside Elementary School (preschool through 6th grade) is located at 1300 Amador Street in San Pablo, directly east of I-80 within the project limits. Amador Street is the primary access to and from Riverside Elementary School. Children accessing the school from west of I-80 use an existing pedestrian crossing over I-80, which connects the end of Riverside Avenue on the west side of I-80 to Amador Street (across from the school). Vista High School is northwest of Rollingwood Drive and El Portal Drive, about 0.25 mile outside of the project limits.

2.1.3. Environmental Consequences

2.1.3.1. Land Use and Planning

The project is consistent with local and regional plans. It would serve an existing developed urban area, and would not involve unused rural land or expand growth through changes in new transportation capacity or access (see Section 2.2.2). The project design has been developed in coordination with the cities of San Pablo and Richmond and with Contra Costa County. The project area is not within the jurisdiction of a regional conservation plan.

2.1.3.2. Parks and Recreational Facilities

The project would not affect Alvarado Park or Wildcat Canyon Regional Park. No formal trails or recreational facilities are within or near the proposed project. There are no formal trails along Wildcat Creek in the vicinity of the west side of I-80, and therefore construction of the frontage road structure over the creek would not interfere directly or indirectly with park use.

2.1.3.3. Schools

The project would reconstruct the existing pedestrian overcrossing of I-80 between San Pablo Dam Road and McBryde Avenue. This overcrossing connects Riverside Elementary School (located on Amador Street, at Riverside Avenue), adjacent residential neighborhoods, and Wildcat Canyon Regional Park on the east side of I-80 to Riverside Avenue on the west side of I-80. The overcrossing does not provide access across Amador Street, a busy street that students have to cross to reach Riverside Elementary School. The project would reconstruct the overcrossing in approximately its current location as a longer structure to cross the new frontage road and Amador Street on the east side of I-80. On the east side of I-80 and Amador Street, a permanent easement or transfer agreement of a portion of the school parking

lot at Riverside Avenue and Amador Street would be required for a spiral or switchbacked pedestrian ramp for the new overcrossing. Informal consultation between CCTA and the West Contra Costa Unified School District indicates this option would be a favorable safety improvement (see correspondence in Appendix I from West Contra Costa Unified School District, October 1, 2008). The Department and CCTA will work with the West Contra Costa Unified School District to obtain the easement or agreement.

Reconstruction of the pedestrian overcrossing would require temporary closure of the existing structure, which would affect access to and from the school and the neighborhood to the west of I-80.

2.1.4. Avoidance, Minimization, and/or Mitigation Measures

Reconstruction of the proposed pedestrian overcrossing will be timed in consultation with the school district to avoid school sessions to the extent possible, although the school is in session throughout most of the year. Notice well in advance of construction will be necessary to adequately inform school staff and parents of the construction plans and timing. The design of the overcrossing will require that the school can lock a gate preventing entrance to school property while still allowing continued public access between the overcrossing landing and Amador Street. Reconstruction of the overcrossing prior to reconstruction of the I-80/San Pablo Dam Road Interchange will be investigated and considered during final design and planning for construction staging.

2.2. Growth

This section is based on the Community Impact Assessment (URS 2008b) prepared for the proposed project.

2.2.1. Regulatory Setting

The Council on Environmental Quality regulations, which implement NEPA, require evaluation of the potential environmental consequences of all proposed Federal activities and programs. This provision includes a requirement to examine indirect consequences, which may occur in areas beyond the immediate influence of a proposed action and at some time in the future. The Council on Environmental Quality regulations (40 Code of Federal Regulations [CFR] 1508.8) refer to these

consequences as secondary impacts. Secondary impacts may include changes in land use, economic vitality, and population density, which are all elements of growth.

CEQA also requires the analysis of a project's potential to induce growth. Section 15126.2(d) of the CEQA guidelines requires that environmental documents "discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment."

2.2.2. Growth Inducement Assessment

Growth, as used in this report, refers to the development of the built environment as communities respond to the demands of an increasing population and/or business environment. Growth trends fluctuate over periods of low and high activity depending on factors such as policy, zoning, economy, and infrastructure that either encourage or discourage it. The nature of a development project can be described in terms of whether it might influence growth, and if so, in what way or magnitude. Growth inducement may also be discussed in the context of whether a project would tend to create potential for further development beyond the project itself, or is a project that is planned as a response to existing or foreseeable demands of the community served. This distinction generally explains the intent and purpose of a proposed project. This discussion of growth addresses the compatibility of the proposed project with the planning documents that direct development activities (in this case, the Contra Costa County General Plan and the City of San Pablo General Plan) and the potential for the project to contribute to growth.

I-80 and the San Pablo Dam Road Interchange were built in 1956. While the population of Contra Costa County, including the City of San Pablo and surrounding communities, nearly tripled between then and 2000, the capacity of the freeway was not increased until eastbound and westbound HOV lanes were added between 1993 and 1998. No operational modifications have been made to the I-80/San Pablo Dam Road Interchange since it was built.

I-80 and the San Pablo Dam Road Interchange no longer provide the capacity for the volume of traffic using these facilities. The existing level of service (LOS) at the intersection of the eastbound I-80 on- and off-ramps, San Pablo Dam Road, and Amador Street is F in the morning and afternoon/evening peak commute hours. It is forecasted to continue at this operating condition through 2035. At the intersection of the westbound I-80 off-ramp and San Pablo Dam Road, the existing LOS is F during

the morning peak hours and D during the afternoon/evening peak hours. These traffic volumes create long queues on San Pablo Dam Road and Amador Street. A recent Caltrans study on I-80 corridor traffic operations showed that on the I-80 mainline traffic substantially slows down at the San Pablo Dam Road Interchange. On westbound I-80, traffic slowed to 12 mph during the morning peak hours. In the eastbound direction, traffic slowed to 22 mph during the afternoon/evening peak hours.

The proposed project is designed to improve traffic operations at the San Pablo Dam Road Interchange to relieve congestion that backs up onto local streets and to improve traffic operations on the I-80 mainline in the project area. This would help serve the growth in traffic that has taken place in the region over the past four decades since I-80 was originally built as well as planned growth in the region.

The City of San Pablo's land use policies are the primary land use controls that determine growth in the project area. The proposed project is consistent with the City's General Plan. That plan considers effective and efficient roadways an important goal for the City and specifically targets the area serviced by the I-80/San Pablo Dam Road Interchange (District 1: the Gateway District) as an Entertainment/Regional Serving District requiring an adequate roadway network to carry large volumes of traffic (City of San Pablo 1996). Additionally, General Plan Policy LU 8.4 calls for prioritized redevelopment and consolidation of District parcels fronting I-80 to create an attractive and enticing freeway frontage.

The following factors are also considered in the determination of whether this project would induce growth:

- The project would not substantially change accessibility between the existing freeway and the local communities. The El Portal Drive, San Pablo Dam Road, and McBryde Avenue interchanges on I-80 already exist and are heavily used by traffic. The project improvements would not create any new access to communities or lands that are not already served by the freeway and local roads.
- The project is designed to improve the operations of the existing interchanges within the project limits and reduce delays, by specifically addressing operational constraints inherent within the current facility.
- Lands served by the freeway and interchanges within the project limits are already highly urbanized or unsuitable for development, and no reasonably foreseeable growth is anticipated with the exception of the planned or already completed developments discussed in Section 2.1.1.3. The west side of I-80 in

the study area is largely built-out with housing, commercial uses, and Saint Joseph Cemetery. The east side is also developed with housing, Riverside Elementary School, recreational vehicle storage areas (on land already owned by the Department), and commercial uses. Undeveloped land east of the I-80/San Pablo Dam Road Interchange is on steep, slide-prone parcels that were acquired by the Department as a result of previous landslide activity and are not planned for development.

Therefore, the proposed project would accommodate existing and planned growth but would not induce growth.

2.3. Community Impacts

This section is based on the Community Impact Assessment (URS 2008b) prepared for the proposed project.

2.3.1. Community Character and Cohesion

2.3.1.1. Regulatory Setting

NEPA established that the Federal government use all practicable means to ensure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings (42 USC 4331[b][2]). FHWA in its implementation of NEPA (23 USC 109[h]) directs that final decisions regarding projects are to be made in the best overall public interest. This requires taking into account adverse environmental impacts, such as, destruction or disruption of human-made resources, community cohesion and the availability of public facilities and services.

Under CEQA, an economic or social change by itself is not to be considered a significant effect on the environment. However, if a social or economic change is related to a physical change, then social or economic change may be considered in determining whether the physical change is significant. Since this project would result in physical change to the environment, it is appropriate to consider changes to community character and cohesion in assessing the significance of the project's effects.

2.3.1.2. Affected Environment

Population and Community Characteristics

The project is primarily within the City of San Pablo and includes an area of unincorporated Contra Costa County. El Portal Drive generally marks the boundary

between San Pablo and unincorporated Contra Costa County. At the western limit of the project, McBryde Avenue is the border between the cities of San Pablo and Richmond.

Neighborhoods in or near the project include the Rollingwood residential area along and to the west of El Portal Drive, and the East Richmond Heights residential neighborhood in the hills east of and above McBryde Avenue. San Pablo Avenue and San Pablo Dam Road support commercial retail and business districts.

Census Block Groups that most closely correspond to the project area were examined, and population and community characteristics of the groups were compared with the totals for the City of San Pablo. The community impacts study area and the Block Groups evaluated are shown in Figure 2.3-1. The total city population in 2007 was estimated to be 30,965 with the study area representing about 10,300, or 31 percent of the total. The largest age group in the city is 35–64 years (31 percent). In general, the age of the study area population reflects the composition of San Pablo. However, Census Tract 3690.01 Block Group 2, which is west of I-80 extending south from El Portal Drive to Evans Avenue, has about three times the amount of senior citizens than the San Pablo average. The ethnic composition of the city in 2000 was predominantly Hispanic or Latino (44 percent), followed by people who identified themselves as white (32 percent), and African Americans (18 percent). The study area overall has a greater percentage of whites and African Americans than the population of San Pablo, and roughly half the percentage of Hispanic or Latino population of the city as a whole.

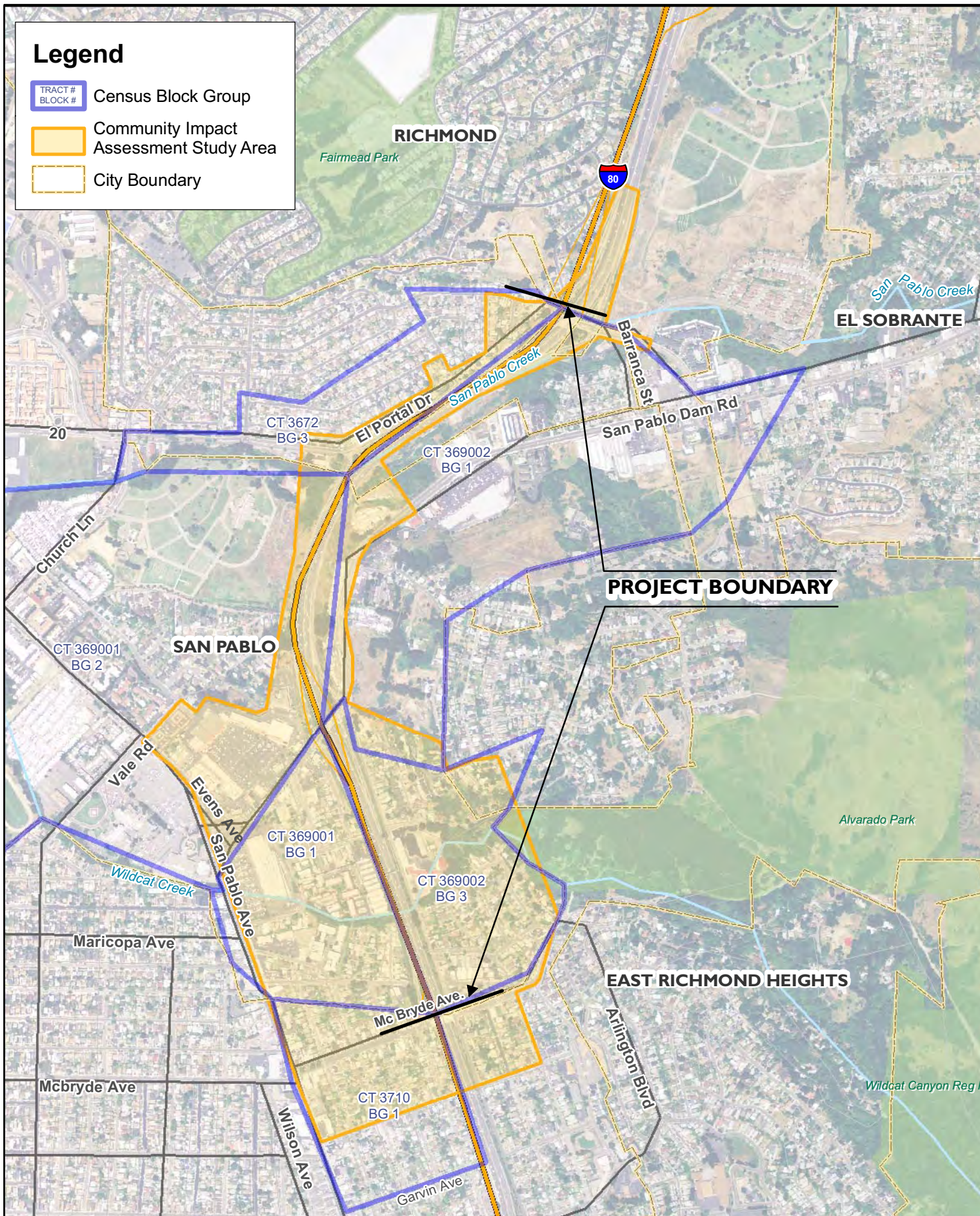
The 2000 median household income for the City of San Pablo was \$37,184, with 18 percent living below the poverty level. In the study area, slightly over ten percent of residents were below the poverty level. The census block in the center of the study area, nearest the I-80/San Pablo Dam Road Interchange, represents the highest overall population, highest elder population, and lowest median household income.

Employment and Economics

On the west side of the I-80/San Pablo Dam Road Interchange is the Gateway District, which is the city's commercial center and includes Casino San Pablo on San Pablo Avenue. Commercial uses include dine-in and drive-through restaurants, highway retail, and lodging. Residential uses extend northward from the Gateway District to the north end of the study area. The area south of the Gateway District is residential. On the east side of the interchange, the southern portion of the study area

Legend

- TRACT #
BLOCK # Census Block Group
- Community Impact
Assessment Study Area
- City Boundary



Source: URS Corp., Oakland L:\Projects\San_Pablo_Dam_Road_26815671\MXD\Current Working Documents\Census_Block_Group_Boundary.mxd



0 1,000 2,000
1 INCH = 2,000 FEET

I-80 / San Pablo Dam Road
Interchange Improvement

26815671

CENSUS BLOCK
GROUP BOUNDARY

Figure
2.3-1

February 2008

is mixed residential and institutional (Riverside Elementary School) with some open space. The area north of the interchange includes a commercial mobile home storage and sales business located on Department right-of-way.

Community Services and Facilities

Community services including parks and schools are described in Section 2.1.2. Hospitals and emergency services are described in Section 2.4.1.

2.3.1.3. Environmental Consequences

The project has the potential to affect community character and cohesiveness in the study area. In general, direct impacts to the community would result from removal of homes and businesses and from changes in access between I-80 and the community. The following summarizes these changes by location.

El Portal Drive

The project would modify existing access to and from I-80 by relocating the existing El Portal Drive on-ramp by approximately 2,000 feet to east. The Rollingwood neighborhood is generally west of El Portal Drive. Two residences on Rollingwood Drive, east of Judith Court, would be acquired to allow for realignment of El Portal Drive for the proposed relocated westbound on-ramp. The realignment of the road and acquisition of these two residences would not divide or isolate this community, as the affected parcels are on the eastern edge of the neighborhood at El Portal Drive and I-80. Remaining right-of-way impacts in this neighborhood would consist of partial acquisition of parcels to accommodate realignment of the El Portal Drive, but the existing residential use of each property would remain unchanged.

Humboldt Avenue and Riverside Avenue

The project would require acquisition of three residences located between Humboldt Avenue and I-80 as well as an apartment building and a self-storage business that front I-80 at the terminus of Riverside Avenue. These acquisitions would take place along the edge of this mixed residential and commercial area where it borders the west side of I-80. The existing soundwall on the freeway on-ramps and off-ramps in this area would be reconstructed to the west to the new edge of pavement. Local traffic circulation in this neighborhood would be otherwise unchanged; Humboldt Avenue and Riverside Avenue would remain in their existing locations and provide the same access to Contra Costa Avenue. The changes would not divide or isolate the remaining residences or neighborhood. Changes to the pedestrian overcrossing at Riverside Avenue are discussed separately below.

Proposed Frontage Road and McBryde Avenue

The project would modify access between I-80 and local roads with the addition of a westbound frontage road between San Pablo Dam Road and McBryde Avenue. The frontage road would replace the existing freeway off-ramp connection to McBryde Avenue. Westbound I-80 traffic that currently exits the freeway at McBryde Avenue would exit at a new auxiliary lane and off-ramp east of San Pablo Dam Road, travel through a signalized intersection at San Pablo Dam Road, and then continue to McBryde Avenue. Signage on the freeway would direct westbound drivers headed toward McBryde Avenue to exit at San Pablo Dam Road. Exiting I-80 at the longer freeway auxiliary lane would allow drivers heading to San Pablo Dam Road or McBryde Avenue more time to change lanes. Access between the freeway and McBryde Avenue would therefore remain available, and this change in circulation would not affect the neighborhoods that rely on the existing McBryde Avenue off-ramp.

Pedestrian Access

An existing pedestrian overcrossing connects the two sides of Riverside Avenue, providing access between Riverside Elementary School and the nearby residential area off Amador Street east of I-80 to neighborhoods west of I-80. The overcrossing also provides access across I-80 to the undeveloped open space area that borders Wildcat Creek. The new pedestrian overcrossing would provide the same access to these neighborhoods and land uses, but also extend across Amador Street on the east side of I-80, allowing students and other pedestrians to avoid Amador Street traffic and providing a safer and more convenient crossing of this busy local road. This would improve public access between the school and the neighborhood on the west side of I-80. The existing overcrossing would have to be temporarily closed during construction.

Pedestrian access would also be improved by completing sidewalks and crosswalks on both sides of San Pablo Dam Road, as described in Section 1.3.1.1 (Pedestrian and Bicycle Facilities).

2.3.1.4. Avoidance, Minimization, or Mitigation Measures

Potential impacts to community access and circulation are avoided by including replacement of the pedestrian overcrossing in the project, and inclusion of sidewalks across the I-80/San Pablo Dam Road Interchange structure. Temporary pedestrian access impacts during construction will be minimized by the measures outlined in Section 2.1.4.

2.3.2. Relocations

2.3.2.1. Regulatory Setting

The Department's Relocation Assistance Program (RAP) is based on the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (as amended) and 49 CFR Part 24. The purpose of the RAP is to ensure that persons displaced as a result of a transportation project are treated fairly, consistently, and equitably so that such persons will not suffer disproportionate injuries as a result of projects designed for the benefit of the public as a whole. Appendix D provides a summary of the RAP.

All relocation services and benefits are administered without regard to race, color, national origin, or sex in compliance with Title VI of the Civil Rights Act (42 USC 2000d, et seq.). The Department's Title VI Policy Statement is included in Appendix C.

2.3.2.2. Affected Environment

The project would require acquisition of or temporary construction easements at some parcels adjacent to the project. Both build alternatives would have the same right-of-way impacts. The affected properties are located on or adjacent to:

- El Portal Drive (the rear yards face El Portal Drive, but the street addresses are on Rollingwood Drive, Judith Court, and Avon Lane). The affected neighborhood consists of single-family homes.
- San Pablo Dam Road, west of I-80. The affected parcels are private commercial and retail businesses with parking lots and entrances fronting San Pablo Dam Road.
- San Pablo Dam Road, east of I-80. The affected parcels are leased from the Department by a private business that stores and rents recreational vehicles.
- Humboldt Avenue, Riverside Avenue, and Joel Court. These are single-family and multifamily homes, and a private commercial self-storage business.
- Amador Street. The affected property is part of a parking lot at Riverside Elementary School.

2.3.2.3. Environmental Consequences

The potentially affected parcels, based on the preliminary design, are listed in Table 2.3-1 and shown in Figure 2.3-2. The following summarizes the potential property effects of the proposed project.

Impacts to Households

In the El Portal Drive area of the Rollingwood neighborhood, two single-family homes would be acquired, and portions of parcels would be acquired from six other single-family homes.

Table 2.3-1 Properties Potentially Affected by the Project

Parcel ID	APN#	Street Address	Type of Property	Potential Actions
A	416013024	3168 Rollingwood, San Pablo	Single Family	Full Taking
B	416013020	3160 Rollingwood, San Pablo	Single Family	Full Taking
C	416013023	3152 Rollingwood, San Pablo	Single Family	Partial Taking
D	416013021	3058 Judith Court, San Pablo	Single Family	Partial Taking
D2	416013007	El Portal Drive	Unoccupied	Temporary Construction Easement
E	416022008	3040 Avon Lane, San Pablo	Single Family	Partial Taking
F	416022007	3036 Avon Lane, San Pablo	Single Family	Partial Taking
G	416022006	3030 Avon Lane, San Pablo	Single Family	Partial Taking
H	416022005	3024 Avon Lane, San Pablo	Single Family	Partial Taking
H2	416022004	3018 Avon Lane, San Pablo	Single Family	Temporary Construction Easement
I	417290002	40 San Pablo Town Center, San Pablo	Commercial	Temporary Construction Easement
J	417290003	50 San Pablo Town Center, San Pablo	Commercial / Retail Center	Partial Taking
K	41729004	Driveway to shopping center	Commercial / Retail	Temporary Construction Easement
L	417042034	2500 San Pablo Dam Road, San Pablo	Gas Station/Carwash	Temporary Construction Easement
M	417042033	2526 San Pablo Dam Road, San Pablo	Commercial / Restaurant	Partial Taking
N	417041008	Humboldt Avenue, San Pablo	Single Family	Full Taking
O	417041002	1424 Humboldt Avenue, San Pablo	Single Family	Full Taking
P	417041005	1422 Humboldt Avenue, San Pablo	Triplex	Full Taking
Q	417041006	5303 Riverside Avenue, San Pablo	Single Family	Full Taking
R	417043008	5296 Riverside Avenue, San Pablo	Multi-Family	Full Taking
S	417043009	5310 Riverside Avenue, San Pablo	Single Family	Full Taking
T	418030014	1300 Amador Street, San Pablo	School Parking Lot	Partial Taking
U	417030014	5310 Riverside Avenue, San Pablo	Commercial/Self-Storage	Full Taking
Owned by Caltrans	419032006, 419032009, 419031002, 419032005, 419032008, 419032007, 420055001	San Pablo Dam Road, San Pablo	Government Owned/Institutional	Caltrans right-of-way. Existing business has lease that will not be renewed.

Source: Contra Costa County Assessor's Office and field visits

Note: This is only a preliminary assessment. Some partial takings could become full takings, or no taking at all. The final construction alternative selection and final construction details will determine the final takings.



- Full or partial property acquisition
- Temporary construction easement
- Lease of Caltrans property to private business to be terminated



I-80 / San Pablo Dam Road
Interchange Improvement
26815671

Potentially Affected
Parcels

Figure
2.3-2
April 2008

On Humboldt Drive and Riverside Avenue, four single-family, one triplex, and one multifamily residential structure would be fully acquired. A temporary construction easement would be necessary at Joel Court, but no homes or relocations are required at that location.

Specific characteristics of the proposed displaced families with respect to special relocation needs are not known at this stage of project development. Census information at the Block Group level (the most specific available from the U.S. Census) indicates that the neighborhoods in the vicinity of El Portal Drive have a lower percent of minority residents than the City of San Pablo average, and an average family size of about 3.9 persons per household. The Block Group that contains Humboldt Drive and Riverside Avenue (and extends out to San Pablo Dam Road) has a higher-than-average proportion of minority residents than San Pablo and an average family household size of 4.6 persons. While income is generally slightly higher and poverty levels slightly lower in the study area than in the City of San Pablo, the average poverty level for the study area population is about 14 percent, and therefore some of the displaced residents can be expected to be low income.³

The affected residences that may be displaced represent 0.2 percent of the total housing units available in San Pablo as of 2008. In 2008, approximately 353 residences were for sale or rent in the city ranging from single-family homes to mobile homes (see Section 2.1.1.2). Adequate housing for sale or rent appears to exist for residents displaced by the proposed project, if they choose to remain in the same area. Appendix D describes relocation assistance resources available to the affected residents and businesses.

Impacts to Businesses and Institutions

The project will require a partial to full right-of-way take at the self-storage business on Riverside Avenue to widen the existing right-of-way for the proposed westbound frontage road. Relocation of this business would cause loss of clientele from the disruption of moving. The private owner of the business would be compensated for the necessary right-of-way acquisition, and the owner can choose to relocate.

The recreation vehicle storage and sales business on San Pablo Dam Road is located on land owned by the Department and is leased on a month-to-month basis. The

³ The poverty threshold for a family of four determined by the U.S. Department of Health and Human Services was \$17,603 in 2000, corresponding to the year 2000 Census Data for income statistics used in this report, and \$21,203 in 2007, the latest year available (http://www.census.gov/Press-Release/www/releases/archives/income_wealth/012528.html).

owner is aware of the need to relocate when the property became needed for transportation facilities.

Partial acquisitions of other parcels for reconstruction of the San Pablo Dam Road Overcrossing would affect driveway access into parking lots that serve businesses along this road. This may temporarily inconvenience the customers of these businesses during construction. At the Jack in the Box restaurant on the west side of the interchange, a retaining wall may encroach on some existing parking spaces.

The school district supports the proposed relocation of the pedestrian overcrossing because it would improve safety and access for students walking to and from school (see correspondence in Appendix I). However, the overcrossing would require a permanent easement or transfer agreement of a portion of the Riverside Elementary School parking lot at the corner of Amador Street and Riverside Avenue. A preliminary estimate of nine parking spaces for individuals who work, volunteer, or visit at the school would be removed within the 25-space lot bordering Riverside Avenue. The school has a second parking lot off Amador Street that would remain unaffected; that lot has approximately 37 spaces. The Department and CCTA will work with the school district to define the easement or transfer of property that allows for construction and maintenance of the proposed pedestrian overcrossing and changes in parking.

2.3.2.4. Avoidance, Minimization, or Mitigation Measures

Relocation assistance payments and counseling will be provided to persons and businesses in accordance with the Federal Uniform Relocation Assistance and Real Properties Acquisition Policies Act, as amended, to ensure adequate relocation and a decent, safe, and sanitary home for displaced residents. All benefits and services would be provided equitably without regard to race, color, national origin, or sex in compliance with Title VI of the Civil Rights Act (42 U.S. Code 2000d, et seq.). The Relocation Assistance Program was developed to help displaced individuals move with as little inconvenience as possible. All rights and services provided under Public Law 91-646, Uniform Relocation Assistance and Real Property Acquisition Act of 1970 would be strictly followed to meet the need of the handicapped, elderly, and other special groups (e.g., non-English speaking people) to ensure that their relocation needs are met. Programs implemented to meet these needs include bilingual brochures on relocation services, interpreters, determination of people's needs and preferences through individual interviews, transportation services for those who do

not own personal transportation or who cannot drive, information on other State and Federal assistance programs, and counseling to minimize hardships.

The Fair Housing Law (Title VIII of the Civil Rights Act of 1968) set forth the policy of the United States to provide, within constitutional limitations, for fair housing throughout the United States. The Act and later acts and amendments make discriminatory practices in the purchase and rental of most residential units illegal if based on race, color, religion, sex, national origin, or handicap.

Caltrans Relocation Assistance Program information is included in Appendix D.

The Department and CCTA will also final impacts to any parking areas at the businesses bordering San Pablo Dam Road on the west side of the freeway, and will either reconfigure the striping/layout of the existing parking lot or provide compensation for loss of parking. These steps will take place during the right-of-way and final design stages of project development.

2.3.3. Environmental Justice

2.3.3.1. Regulatory Setting

All projects involving a Federal action (funding, permit, or land) must comply with Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, signed by President Clinton on February 11, 1994. This Executive Order directs Federal agencies to take the appropriate and necessary steps to identify and address disproportionately high and adverse effects of Federal projects on the health or environment of minority and low-income populations to the greatest extent practicable and permitted by law. Low income is defined based on the Department of Health and Human Services poverty guidelines. For 2007, this was \$21,203 for a family of four.

All considerations under Title VI of the Civil Rights Act of 1964 and related statutes have also been included in this project. The Department's commitment to upholding the mandates of Title VI is evidenced by its Title VI Policy Statement, signed by the Director, which is included in Appendix C.

2.3.3.2. Affected Environment

A comparison of household incomes based on Census “block-level” data⁴ for the study area shows that no low-income communities would be affected disproportionately by the project. FHWA and the Department of Transportation (DOT) use the Federal Department of Health and Human Services (HHS) poverty guidelines to determine low-income (\$21,203 for a family of four in 2007). As indicated in Table 2.3-2, the average household income in San Pablo is \$37,184. All of the Census Block Groups in the study area have average household incomes equal to or greater than the citywide average except for Block Group 3690.01 (west of I-80, between approximately San Pablo Dam Road and McBryde Avenue), which has an average household income of \$25,125. The average household income for that Block Group is still above the HHS low-income guideline of \$21,203.

A minority community is defined as a distinct population composed of predominantly one or more racial or ethnic groups that is nonwhite. The ethnic composition of San Pablo in 2000 was predominantly Hispanic or Latino, followed by white, then African-American. The study area, however, is predominantly white and African-American (together comprising 60 percent of the study area, 36.1 percent of which was white) (Table 2.3-3). While the racial makeup of the study area is somewhat similar to that of the City of San Pablo as a whole, one Census Block Group (3690.01) has almost twice the percentage of African-Americans as the City of San Pablo as a whole. The overall population of this Census Block Group was 1,459 individuals in 2000 (the latest data available), of which African Americans comprised 496 individuals or 34 percent of the study area population, compared to 18 percent for the City of San Pablo.

⁴ Census data have been collected and reported by the U.S. Census at different levels of detail and geographic area: by counties, tracts, block groups, and blocks. Blocks are the smallest Census geography, but only general population characteristics are reported by the Census at the block level. Figure 2.3-1 shows the boundaries of the Census Tracts and Block Groups.

Table 2.3-2 Income Statistics for the City of San Pablo and Study Area in 2000

Attribute	City of San Pablo	Study Area						
		CT 3672 Block Group 3	CT 3690.01 Block Group 1	CT3690.01 Block Group 2	CT 3690.02 Block Group 1	CT3690.02 Block Group 3	CT3710 Block Group 1	Total in Study Area Block Groups
Median household income	\$37,184	\$42,083	\$37,159	\$25,125	\$35,592	\$55,592	\$51,339	XX
Per capita income	\$14,303	\$12,573	\$16,144	\$15,557	\$19,302	\$20,352	\$15,994	XX
Total Area Population	30,215	938	1,459	4,048	1,048	1,013	903	9,409
Number of persons below the poverty level in 1999	5,331	47	209	461	147	81	25	970
% Below poverty level in 1999	17.6%	5.0%	14.3%	11.4%	14.0%	8.0%	2.8%	10.3%

Source: 2000 U.S. Census Table P12.

Table 2.3-3 Racial/Ethnic Composition of the City of San Pablo and the Study Area in 2000

Racial/Ethnic Group	City of San Pablo	CT 3672 Block Group 3	CT 3690.01 Block Group 1	CT3690.01 Block Group 2	CT 3690.02 Block Group 1	CT3690.02 Block Group 3	CT3710 Block Group 1	Total In Study Area Block Groups
White alone	9555	341	295	1,455	441	450	410	3,392
%	31.6%	36.4%	20.2%	35.9%	42.1%	44.4%	45.4%	36.1%
African American	5539	82	496	1,056	197	253	163	2,247
%	18.3%	8.7%	34.0%	26.1%	18.8%	25.0%	18.1%	23.9%
American Indian and Alaska Native	271	4	11	29	17	19	8	88
%	0.9%	0.4%	0.8%	0.7%	1.6%	1.9%	0.9%	0.9%
Asian	4945	225	275	741	210	67	144	1662
%	16.4%	24.0%	18.8%	18.3%	20.0%	6.6%	15.9%	17.7%
Native Hawaiian and Other Pacific Islander	154	1	28	27	2	8	2	68
%	0.5%	0.1%	1.9%	0.7%	0.2%	0.8%	0.2%	0.7%
Other race	7688	220	237	498	93	131	111	1290
%	25.4%	23.5%	16.2%	12.3%	8.9%	12.9%	12.3%	13.7%
Two or more races	2063	65	117	242	88	85	65	662
%	6.8%	6.9%	8.0%	6.0%	8.4%	8.4%	7.2%	7.0%
Hispanic or Latino (of any race)	13490	350	357	850	214	236	229	2236
%	44.6%	37.3%	24.5%	21.0%	20.4%	23.3%	25.4%	23.8%
Total:	30215	938	1,459	4,048	1,048	1,013	903	9,409

Source: 2000 U.S. Census Tables P3, P11.

2.3.3.3. Environmental Consequences

No low-income communities would be affected disproportionately by the project. The average household incomes for all of the census block groups affected by the project are above the Federal low-income threshold.

Construction of the proposed frontage road between San Pablo Dam Road and McBryde Avenue would result in acquiring four single-family homes, a triplex, and an apartment complex in a census block (3690.01) that has approximately twice the percentage of African-American residents as the City of San Pablo overall. The project would also require acquisition and relocation of two homes/families in Census Block Group 3672, due to the realignment of El Portal Drive to accommodate the proposed westbound on-ramp. The population in Block Group 3672 area is predominantly white.

Therefore, the project would result in a disproportionate adverse relocation impact to a comparatively higher minority population within Census Block Group 3690.01 due to the proposed acquisition of homes and relocation of residents. The project's relocation requirements would also adversely impact a comparatively higher nonminority population, although to a lesser extent (fewer homes).

The necessary relocations would be unavoidable and would be the same for both build alternatives. Initial project designs would have involved a greater number of potential housing relocations but were reduced by using retaining walls to minimize encroachment of the project into residential parcels next to the existing freeway.

This same community (Census Block Group 3690.01) is not expected to be affected by other aspects of the project. Local street circulation in this community would be the same, as existing streets would still have the same access and traffic conditions. A replacement soundwall would be constructed along westbound I-80 at the edge of the proposed frontage road and would continue to attenuate traffic noise from the freeway corridor, similar to the existing situation. Neither the project nor the frontage road would increase traffic volumes on the I-80 corridor or McBryde Avenue; therefore, the project would not adversely affect air quality. Moreover, vehicle emissions are projected to decrease over time due to continued improvements in emission reductions.

The public involvement for this project included an informational meeting specifically targeted at the individuals affected by relocation. Chapter 3 provides a description of the public involvement process and the concerns raised and addressed.

2.3.3.4. Avoidance, Minimization, or Mitigation Measures

In 1997, the U.S. Department of Transportation (USDOT) issued the Order to Address Environmental Justice in Minority Populations and Low-Income Populations (Federal Register, Vol. 62, No. 72: 18377–18381, April 15, 1997). As the USDOT’s response to Executive Order 12898, it generally describes the process for incorporating environmental justice principles into USDOT programs, policies, and activities. The objective of the order is to ensure that the interests and well-being of minority and low-income populations are considered and addressed during transportation decision making by working within the existing statutory and regulatory requirements. The order states that USDOT will not carry out any programs, policies, or activities that will have a disproportionately high and adverse effect on minority populations or low-income populations unless “further mitigation measures or alternatives that would avoid or reduce the disproportionately high and adverse effect are not practicable.”

The principal purpose of the proposed project is to improve traffic operations at the I-80/San Pablo Dam Road Interchange. Because of the short distances between the interchange and interchanges at El Portal Drive and McBryde Avenue to the east and west, respectively, limiting modifications to the San Pablo Dam Road Interchange would not substantially improve traffic operations. The only practicable alternative to improving traffic operations between the I-80/San Pablo Dam Road Interchange and the McBryde Avenue off-ramp is to close that off-ramp and connect McBryde Avenue to the San Pablo Dam Road Interchange with a frontage road, which is included in the proposed project.

Families or individuals affected by relocation will be eligible for relocation assistance. This includes assistance in finding, obtaining, and moving into replacement housing of their choice, within the benefits eligible to each family that are determined based on their individual circumstances. Relocation benefits and assistance will offset the adverse impacts associated with the necessary acquisition of homes and displacement of families.

Based on the above discussion and analysis, neither of the proposed build alternatives would cause disproportionately high and adverse effects on any minority or low-income population as per E.O. 12898 regarding Environmental Justice.

2.4. Utilities and Emergency Services

2.4.1. Affected Environment

Both build alternatives would require relocating sewer, electrical, gas, water, petroleum, and communication lines. Utilities in the project area were identified through site visits and reviews of utility plans obtained from the Department, CCTA, Contra Costa County, City of San Pablo, City of Richmond, Comcast, Conoco Phillips, East Bay Municipal Utility District, CPN Pipeline Company, Sprint, Verizon, AT&T, Kinder Morgan Company, Chevron Pipe Line Company, West County Wastewater District, and Pacific Gas and Electric (PG&E).

The Contra Costa County Fire Protection District, which has a San Pablo branch at 13928 San Pablo Avenue, provides fire and emergency services in the project area. The San Pablo Police Department, located at 13880 San Pablo Avenue, and the Richmond Police Department, 1701 Regatta Boulevard, provide law enforcement services in the project area. The Contra Costa County Sheriff's Department also provides law enforcement coverage in unincorporated areas of the county.

The nearest hospital is Doctors Medical Center in San Pablo, at 2000 Vale Road about 0.4 mile from the I-80/San Pablo Dam Road Interchange. Doctors Medical Center provides San Pablo with 24-hour emergency services, a burn center, a regional cancer center, a women's center, and the only full-service, open-heart surgery program in West Contra Costa County. Additional services include home health and long-term care, obstetrics, inpatient and same-day surgery, rehabilitation services, orthopedic surgery, and alcohol and drug rehabilitation (City of San Pablo 2008c).

Kaiser Permanente Medical Center is about 2.1 miles west-southwest of the I-80/San Pablo Dam Road Interchange at 901 Nevin Avenue in Richmond.

2.4.2. Environmental Consequences

The China Slide is next to the existing State right-of-way on the east side of the I-80/San Pablo Dam Road Interchange. Utilities that currently exist under San Pablo Dam Road are within Caltrans right-of-way but outside the State's "access control limit,"⁵ and some of these utilities will be relocated as part of this project. Approval of longitudinal encroachment exceptions will be required for these utilities, and those

⁵ The access control limit restricts installation of utilities within that portion of the State's right-of-way,

exceptions will be processed during final project design. Further utility investigation would also be performed to verify all utility data during the final project design phase.

As stated in Section 1.3.1.1, project construction would be staged to maintain through traffic on I-80 and San Pablo Dam Road, although detours and limited short-term, temporary closures could be necessary on freeway ramps and other roadways in the project limits. A Traffic Management Plan will be developed as part of the project to address traffic impacts from staged construction, detours, and specific traffic handling concerns such as emergency access during project construction (see Section 2.5.3.5). Access will be maintained for emergency response vehicles, and no disruption to existing emergency service access is expected.

2.5. Traffic and Transportation/Pedestrian and Bicycle Facilities

The information for this section is summarized from the Final Traffic Operations Report prepared for this project (URS 2008a).

2.5.1. Regulatory Setting

The Department, as assigned by FHWA, directs that full consideration should be given to the safe accommodation of pedestrians and bicyclists during the development of federal-aid highway projects (see 23 CFR 652). It further directs that the special needs of the elderly and the disabled must be considered in all federal-aid projects that include pedestrian facilities. When current or anticipated pedestrian and/or bicycle traffic presents a potential conflict with motor vehicle traffic, every effort must be made to minimize the detrimental effects on all highway users who share the facility.

The Department is committed to carrying out the 1990 Americans with Disabilities Act (ADA) by building transportation facilities that provide equal access for all persons. The same degree of convenience, accessibility, and safety available to the general public will be provided to persons with disabilities.

2.5.2. Affected Environment

I-80, a primary interregional commute corridor in and through western Contra Costa County, has major regional significance in the East Bay and the greater San Francisco

Bay Area. In the project area, I-80 is a truck route and provides direct connections to San Pablo, Richmond, and unincorporated areas of Contra Costa County (El Sobrante) through the San Pablo Dam Road, El Portal Drive, McBryde Avenue, and Solano Avenue interchanges. Within the project limits, westbound I-80 (heading toward San Francisco) has one High Occupancy Vehicle (HOV) lane and three mixed-flow (unrestricted vehicle type) lanes. In addition, westbound auxiliary lanes extend between the El Portal Drive on-ramp and San Pablo Dam Road off-ramp, and between the San Pablo Dam Road on-ramp and McBryde Avenue off-ramp. In the eastbound direction (heading toward Sacramento), I-80 has one HOV lane and three mixed-flow lanes. There are no auxiliary lanes between interchanges in the eastbound direction. All of the I-80 on-ramps and off-ramps within the project limits have a single lane.

The following are the primary regional and local roadways in the project vicinity (shown in Figure 1-2):

- El Portal Drive is a two-lane roadway (one lane in each direction) that extends from San Pablo Dam Road to San Pablo Avenue, crossing beneath I-80 at the eastern extent of the project limits. At peak hour conditions, traffic may divert off of San Pablo Dam Road onto El Portal Drive.
- San Pablo Dam Road is an east-west, four-lane roadway (two lanes in each direction). Under existing conditions, it carries approximately 30,000 vehicles per day (vpd).
- San Pablo Avenue is a north-south, four-lane roadway (two lanes in each direction). Under existing conditions, it carries approximately 24,000 vpd in the project vicinity.
- Amador Street is a north-south, two-lane roadway (one lane in each direction) between Solano Avenue and San Pablo Dam Road. Amador Street experiences traffic from vehicles that divert off of I-80 during very congested freeway conditions and from vehicles accessing Riverside Elementary School.
- McBryde Avenue is an east-west, four-lane roadway (two lanes in each direction) that serves the project area and the residential area in the hills above I-80. McBryde Avenue provides access between Amador Street and San Pablo Avenue.

San Pablo Dam Road, San Pablo Avenue, and El Portal Drive are main arterials that are designated as “Routes of Regional Significance” by the Contra Costa Measure C program.⁶

Existing pedestrian and bicycle facilities in the study area are described in Section 1.2.2.1.

2.5.2.1. Traffic Operations Analysis Study Area and Years

A traffic operations analysis was conducted along eastbound and westbound I-80 between the El Portal Drive off-ramp and the Solano Avenue on-ramp. The analysis evaluated the Solano Avenue interchange (west of the McBryde Avenue interchange) to determine the western limits of the project based on traffic operations.

Improvements to the McBryde Avenue interchange were determined to benefit traffic conditions on westbound I-80 independent of any future projects in the corridor and to meet the criteria for establishing the logical termini for the project alternatives.

The analysis evaluated the mainline of I-80, the freeway off-ramps and on-ramps, and the local street intersections that had the greatest potential to be affected by the project. The following freeway ramp and roadway intersections were studied:

- San Pablo Avenue/San Pablo Dam Road;
- Contra Costa Avenue/San Pablo Dam Road;
- Ventura Avenue/San Pablo Dam Road;
- I-80 westbound ramps/San Pablo Dam Road;
- Amador Street/San Pablo Dam Road/I-80 eastbound ramps;
- San Pablo Dam Road/Morrow Drive;
- Amador Street/Alpine Road;
- I-80 westbound off-ramp/McBryde Avenue/Humboldt Street;
- I-80 westbound on-ramp/El Portal Drive;
- I-80 westbound off-ramp /El Portal Drive;
- I-80 eastbound ramps/El Portal Drive;
- I-80 westbound on-ramp/Solano Avenue/Humboldt Street; and
- I-80 eastbound off-ramp/Amador Street.

⁶ Routes of Regional Significance are roads that serve regional mobility or act as reliever routes for the regional system, serving more than one jurisdiction within the county. These routes are adopted by each jurisdiction and the county as part of the Contra Costa County Measure C Growth Management Plan.

The traffic forecasts for the study area were developed using the CCTA travel demand model implemented in TransCAD. Freeway operations along I-80 in the eastbound and westbound directions between the El Portal Drive off-ramp and Solano Avenue on-ramp were analyzed using the VISSIM computer transportation planning/traffic engineering simulation model. An analysis of intersection operations at 13 study intersections used another traffic simulation model called SYNCHRO. The operational analysis evaluated existing and future conditions. Existing conditions represent the year 2005, based on the availability of data when the traffic study was conducted. Future conditions are normally projected for a 20-year horizon, which for this study is the year 2035. The AM and PM peak hour operational models were calibrated and validated to established criteria for freeway, ramp, and intersection volumes, travel times, and observed queues.

2.5.2.2. Existing and Future Year Traffic Conditions (No Build Alternative)

Existing and Future No Build Traffic Volumes

I-80 carries a substantial volume of traffic. The annual average daily traffic (AADT) reported for 2005 was 184,000 east of McBryde Avenue (both directions, 24-hour period), and 181,000 AADT west of El Portal Drive (Caltrans 2007). Traffic is carried on four through-traffic lanes in each direction: three general purpose/mixed-flow lanes and one HOV lane. Two segments of I-80 in the project limits have auxiliary lanes: westbound I-80 between El Portal Drive on-ramp and the San Pablo Dam Road off-ramp, and westbound I-80 between the San Pablo Dam Road on-ramp and the McBryde Avenue off-ramp. All existing on-ramps and off-ramps have single lanes.

Trucks on I-80 represent five percent of the total vehicle volume at the San Pablo Dam Road Interchange (Caltrans 2006a). The average use of the HOV lanes on I-80 in Contra Costa County is relatively high, estimated at approximately 23 percent of the total vehicle volume during the morning (AM) peak period and 15 percent in the afternoon/evening (PM) peak period (Caltrans 2007).

Traffic growth in recent years has heavily affected the I-80 corridor. The AADT on I-80 has increased by up to 29 percent between 1997 and 2007. Existing and future peak period traffic volumes for the freeway and on-ramps and off-ramps in the study area are listed in Tables 2.5-1 and 2.5-2 for the AM and PM peak periods, respectively. These tables show the predicted (modeled) peak period traffic volumes along the I-80 corridor in the project area based on regional projections of land use growth and future travel demand, without the proposed project.

Table 2.5-1 AM Peak Period Existing Conditions (Year 2005) and Future (Year 2035) Traffic Demand (Freeway and Ramps)

Segments	AM Existing (2005)				AM Future (2035)			
	5:00 – 6:00	6:00 – 7:00	7:00 – 8:00	8:00 – 9:00	5:00 – 6:00	6:00 – 7:00	7:00 – 8:00	8:00 – 9:00
Eastbound								
Mainline west of Amador Street off-ramp	1,965	3,730	6,029	6,771	2,300	4,366	7,057	7,925
Amador Street off-ramp	26	54	149	242	34	71	195	317
Mainline between Amador Street off-ramp and San Pablo Dam Road off-ramp	1,939	3,676	5,880	6,529	2,266	4,295	6,862	7,608
San Pablo Dam Road off-ramp	128	268	479	663	105	219	391	452
Mainline between San Pablo Dam Road off-ramp and on-ramp	1,811	3,408	5,401	5,866	2,162	4,076	6,471	7,066
San Pablo Dam Road on-ramp	113	242	495	601	115	246	502	609
Mainline between San Pablo Dam Road on-ramp and El Portal Drive off-ramp	1,924	3,650	5,896	6,467	2,276	4,321	6,973	7,676
El Portal Drive off-ramp	53	131	368	464	98	244	686	866
Mainline east of El Portal Drive off-ramp	1,871	3,519	5,528	6,003	2,264	4,243	6,591	7,116
Westbound								
Mainline east of El Portal Drive off-ramp	5,391	7,561	7,377	6,932	7,933	8,744	8,715	8,645
El Portal Drive off-ramp	86	164	310	377	254	376	729	944
Mainline between El Portal Drive off-ramp and on-ramp	5,305	7,397	7,067	6,555	7,679	8,368	7,986	7,701
El Portal Drive on-ramp	394	694	944	726	515	907	1234	949
Mainline between El Portal Drive on-ramp and San Pablo Dam Road off-ramp	5,699	8,091	8,011	7,281	8,195	9,275	9,220	8,649
San Pablo Dam Road off-ramp	134	261	328	353	576	868	1118	1280
Mainline between San Pablo Dam Road off-ramp and on-ramp	5,565	7,830	7,683	6,928	7,619	8,408	8,102	7,369
San Pablo Dam Road on-ramp	455	756	1,044	1,078	551	915	1263	1305
Mainline between San Pablo Dam Road on-ramp and McBryde Avenue off-ramp	6,020	8,586	8,727	8,006	8,170	9,323	9,365	8,674
McBryde Avenue off-ramp	61	147	340	478	204	383	908	1358
Mainline between McBryde Avenue off-ramp and Solano Avenue on-ramp	5,959	8,439	8,387	7,528	7,966	8,940	8,456	7,315
Solano Avenue on-ramp	205	380	597	517	426	788	1238	1071
Mainline west of Solano Avenue on-ramp	6,164	8,819	8,984	8,045	8,392	9,728	9,694	8,386

Sources: Caltrans 2006a (24-Hour Traffic Volumes for 2005) and URS 2008a for future conditions

Table 2.5-2 PM Peak Period Existing Conditions (Year 2005) and Future (Year 2035) Traffic Demand (Freeway and Ramps)

Segments	PM Existing (2005)				PM Future (2035)			
	3:00 – 4:00	4:00 – 5:00	5:00 – 6:00	6:00 – 7:00	3:00 – 4:00	4:00 – 5:00	5:00 – 6:00	6:00 – 7:00
Eastbound								
Mainline west of Amador Street off-ramp	8,352	8,359	8,590	8,243	9,120	9,121	9,156	9,103
Amador Street off-ramp	338	376	344	393	155	172	153	183
Mainline between Amador Street off-ramp and San Pablo Dam Road off-ramp	8,014	7,983	8,246	7,850	8,965	8,949	9,003	8,921
San Pablo Dam Road off-ramp	758	669	812	784	444	392	462	465
Mainline between San Pablo Dam Road off-ramp and on-ramp	7,256	7,314	7,434	7,066	8,521	8,557	8,541	8,456
San Pablo Dam Road on-ramp	780	730	832	722	989	925	1055	915
Mainline between San Pablo Dam Road on-ramp and El Portal Drive off-ramp	8,036	8,044	8,266	7,788	9,510	9,482	9,596	9,371
El Portal Drive off-ramp	511	518	563	648	1,093	1,106	1,170	1,404
Mainline east of El Portal Drive off-ramp	7,525	7,526	7,703	7,140	8,417	8,377	8,426	7,967
Westbound								
Mainline east of El Portal Drive off-ramp	6,364	6,354	6,222	5,685	7,794	7,782	7,620	6,962
El Portal Drive off-ramp	559	633	639	579	483	547	552	500
Mainline between El Portal Drive off-ramp and on-ramp	5,805	5,721	5,583	5,106	7,311	7,236	7,068	6,462
El Portal Drive on-ramp	571	530	531	463	883	819	821	715
Mainline between El Portal Drive on-ramp and San Pablo Dam Road off-ramp	6,376	6,251	6,114	5,569	8,194	8,054	7,889	7,177
San Pablo Dam Road off-ramp	491	512	505	502	465	485	479	476
Mainline between San Pablo Dam Road off-ramp and on-ramp	5,885	5,739	5,609	5,067	7,729	7,569	7,410	6,701
San Pablo Dam Road on-ramp	859	787	837	760	1118	1024	1089	989
Mainline between San Pablo Dam Road on-ramp and McBryde Avenue off-ramp	6,744	6,526	6,446	5,827	8,847	8,593	8,499	7,690
McBryde Avenue off-ramp	492	495	552	455	769	772	862	710
Mainline between McBryde Avenue off-ramp and Solano Avenue on-ramp	6,252	6,031	5,894	5,372	8,078	7,821	7,637	6,980
Solano Avenue on-ramp	327	269	276	286	441	363	372	385
Mainline west of Solano Avenue on-ramp	6,579	6,300	6,170	5,658	8,519	8,184	8,009	7,366

Sources: Caltrans 2006a (24-Hour Traffic Volumes for 2005) and URS 2008a for future conditions

Existing and Future No Build Travel Time and Vehicle Speeds

Travel time, which represents the driving time within a defined roadway segment in the study area, provides a way to compare how a roadway segment performs in different study years and with each alternative. A slower travel time for an alternative or study year (when comparing the same roadway segment) indicates greater congestion.

During the AM peak hour under existing conditions, the I-80 mainline segment between the El Portal Drive on-ramp and the McBryde Avenue off-ramp is congested in the westbound direction; queuing results from heavy on-ramp and off-ramp volumes at the interchanges. During the PM peak hour, the I-80 mainline segment between the Amador Street off-ramp and the San Pablo Dam Road off-ramp is congested in the eastbound direction. Average future No Build speeds on the freeway are predicted at 30 miles per hour (mph) in the AM peak period and 28 mph in the PM peak period.

Existing and Future No Build Levels of Service

Level of Service, an indicator of the operating performance of a road or intersection, is explained in Section 1.2.2.1. In accordance with Contra Costa County planning criteria, the traffic analysis used LOS D or better (LOS A, B, C, or D) to indicate roadways and intersections that function or will function in the future at an “acceptable” level of performance, while LOS E or F indicated an “unacceptable” level of congestion. Tables 2.5-3 and 2.5-4 list the existing and future No Build LOS ratings for freeway segments, ramps, and intersections in the study area. Future increases in traffic will result in additional congestion in traffic operations on I-80 and its ramps, enough to result in a decrease in LOS ratings along some I-80 segments and ramps as well as on local roads. By 2035, many segments of the I-80 corridor will function at LOS E or F in the peak period travel direction (westbound in the AM period, and eastbound in the PM period).

Table 2.5-3 Summary of I-80 Mainline Segment Levels of Service for Existing and Future No Build Conditions

Segments	AM Peak Hour		PM Peak Hour	
	2005	2035	2005	2035
Westbound				
East of El Portal Drive off-ramp	F	F	F	F
El Portal Drive off-ramp and off-ramp	E	F	E	E
El Portal Drive on-ramp and San Pablo Dam Road off-ramp	F	F	F	F
San Pablo Dam Road off-ramp and on-ramp	F	D	D	E
San Pablo Dam Road on-ramp and McBryde Avenue off-ramp	F	E	E	F
McBryde Avenue off-ramp and Solano Avenue on-ramp	E	D	D	E
West of Solano Avenue on-ramp	E	E	D	E
Eastbound				
Amador Street off-ramp and San Pablo Dam Road off-ramp	C	C	E	F
San Pablo Dam Road off-ramp and on-ramp	B	C	E	F
San Pablo Dam Road on-ramp and El Portal Drive off-ramp	B	C	F	F
East of El Portal Drive off-ramp	B	C	E	E

Source: URS 2008a

Table 2.5-4 Summary of Intersection Levels of Service for Existing and Future No Build Conditions

Intersection		AM Peak Hour		PM Peak Hour	
		2005	2035	2005	2035
1	San Pablo Avenue/San Pablo Dam Road	C	F	F	F
2	Contra Costa Avenue/San Pablo Dam Road	A	B	B	A
3	Ventura Avenue/San Pablo Dam Road	B	A	B	B
4	I-80 WB ramps/San Pablo Dam Road	F	F	D	F
5	Amador Street/San Pablo Dam Road/I-80 EB ramps	F	F	F	F
6	San Pablo Dam Road/Morrow Drive	A	A	A	A
7	Amador Street/Alpine Road	D	F	C	D
8	I-80 WB off-ramp/McBryde Avenue/Humboldt Street	E	F	C	F
9	I-80 WB on-ramp/El Portal Drive	B	F	A	C
10	I-80 WB off-ramp/El Portal Drive	B	F	B	E
11	I-80 EB ramps/El Portal Drive	C	F	E	F
12	I-80 WB on-ramp/Solano Avenue/Humboldt Street	F	F	C	F
13	I-80 EB off-ramp/Amador Street	C	D	C	F

Source: URS 2008a

EB = eastbound; WB = westbound

2.5.3. Environmental Consequences

The three alternatives (No Build, Alternative 1 – Lanes Added, and Alternative 2 – Tight Diamond) were modeled for future traffic conditions. Volumes, speeds, and levels of service are listed and compared in Tables 2.5-5 through 2.5-13B, and a summary is provided at the end of this section.

2.5.3.1. No Build Alternative

Future conditions for the No Build Alternative would be the same as reported in Tables 2.5-3 and 2.5-4 for the year 2035. Volumes would increase due to regional traffic growth, and drivers would increasingly rely on the I-80 corridor. By 2035, most segments of I-80 would function at capacity (LOS E or F) in the peak period commute direction.

The traffic analysis indicates that, in the AM peak period for the No Build Alternative (Table 2.5-5), five of the seven freeway mainline segments in the westbound direction would operate at an unacceptable level of service (LOS E or F). The demand projected in the analysis would exceed capacity in the mainline segment between the San Pablo Dam Road on-ramp and the McBryde Avenue off-ramp in the westbound direction during the AM peak hour, and the segment is projected to become a bottleneck. The traffic analysis projects that significant congestion and queues on westbound I-80 would develop upstream of this bottleneck, east of San Pablo Dam Road. In the PM peak hour (Table 2.5-6), all of the I-80 mainline segments are projected to operate at an unacceptable level of service.

Table 2.5-5 AM Peak Period Comparison of Traffic Conditions – No Build Alternative

Segments	Traffic Volumes				Average (Mean) Speeds (MPH)				Level of Service
	5:00 – 6:00	6:00 – 7:00	7:00 – 8:00	8:00 – 9:00	5:00 – 6:00	6:00 – 7:00	7:00 – 8:00	8:00 – 9:00	
Westbound									
Mainline east of El Portal Drive off-ramp	7,933	8,744	8,715	8,645	54	33	22	21	F
El Portal Drive off-ramp	254	376	729	944	57	51	49	49	
Mainline between El Portal Drive off-ramp and on-ramp	7,679	8,368	7,986	7,701	57	41	28	28	F
El Portal Drive on-ramp	515	907	1,234	949	60	40	15	12	
Mainline between El Portal Drive on-ramp and San Pablo Dam Road off-ramp	8,195	9,275	9,220	8,649	53	30	22	20	F

Table 2.5-5 AM Peak Period Comparison of Traffic Conditions – No Build Alternative

Segments	Traffic Volumes				Average (Mean) Speeds (MPH)				Level of Service
	5:00 – 6:00	6:00 – 7:00	7:00 – 8:00	8:00 – 9:00	5:00 – 6:00	6:00 – 7:00	7:00 – 8:00	8:00 – 9:00	
San Pablo Dam Road off-ramp	576	868	1,118	1,280	57	54	53	53	
Mainline between San Pablo Dam Road off-ramp and on-ramp	7,619	8,408	8,102	7,369	56	57	57	57	D
San Pablo Dam Road on-ramp	551	915	1,263	1,305	60	60	59	59	
Mainline between San Pablo Dam Road on-ramp and McBryde Avenue off-ramp	8,170	9,323	9,365	8,674	59	59	59	59	E
McBryde Avenue off-ramp	204	383	908	1,358	59	58	58	57	
Mainline between McBryde Avenue off-ramp and Solano Avenue on-ramp	7,966	8,940	8,456	7,315	56	56	57	58	D
Solano Avenue on-ramp	426	788	1,238	1,071	60	55	51	56	
Mainline west of Solano Avenue on-ramp	8,392	9,728	9,694	8,386	57	56	55	57	E
Eastbound									
Mainline west of Amador Street off-ramp	2,300	4,366	7,057	7,925	59	59	53	36	NA
Amador Street off-ramp	34	71	195	317	55	55	52	48	
Mainline between Amador Street off-ramp and San Pablo Dam Road off-ramp	2,266	4,295	6,862	7,608	60	59	55	48	C
San Pablo Dam Road off-ramp	105	219	391	542	60	60	59	57	
Mainline between San Pablo Dam Road off-ramp and on-ramp	2,162	4,076	6,471	7,066	59	58	57	46	C
San Pablo Dam Road on-ramp	115	246	502	609	60	60	59	34	
Mainline between San Pablo Dam Road on-ramp and El Portal Drive off-ramp	2,276	4,321	6,973	7,676	59	58	57	40	C
El Portal Drive off-ramp	98	244	686	866	60	59	58	56	
Mainline east of El Portal Drive off-ramp	2,264	4,243	6,591	7,116	59	58	57	57	C

Source: URS 2008a

NA = Not analyzed

Table 2.5-6 PM Peak Period Comparison of Traffic Conditions – No Build Alternative

Segments	Traffic Volumes				Average (Mean) Speeds (MPH)				Level of Service
	5:00 – 6:00	6:00 – 7:00	7:00 – 8:00	8:00 – 9:00	5:00 – 6:00	6:00 – 7:00	7:00 – 8:00	8:00 – 9:00	
Westbound									
Mainline east of El Portal Drive off-ramp	7,794	7,782	7,620	6,962	47	46	48	53	F
El Portal Drive off-ramp	483	547	552	500	41	40	41	44	
Mainline between El Portal Drive off-ramp and on-ramp	7,311	7,236	7,068	6,462	57	57	57	58	E
El Portal Drive on-ramp	883	819	821	715	60	60	60	60	
Mainline between El Portal Drive on-ramp and San Pablo Dam Road off-ramp	8,194	8,054	7,889	7,177	55	54	56	57	F
San Pablo Dam Road off-ramp	465	485	479	476	57	57	57	58	
Mainline between San Pablo Dam Road off-ramp and on-ramp	7,729	7,569	7,410	6,701	57	57	57	57	E
San Pablo Dam Road on-ramp	1,118	1,024	1,089	989	59	60	59	60	
Mainline between San Pablo Dam Road on-ramp and McBryde Avenue off-ramp	8,847	8,593	8,499	7,690	51	53	53	57	F
McBryde Avenue off-ramp	769	772	862	710	56	56	56	57	
Mainline between McBryde Avenue off-ramp and Solano Avenue on-ramp	8,078	7,821	7,637	6,980	57	57	58	58	E
Solano Avenue on-ramp	441	363	372	385	60	60	60	60	
Mainline west of Solano Avenue on-ramp	8,519	8,184	8,009	7,366	56	57	57	57	E
Eastbound									
Mainline west of Amador Street off-ramp	9,120	9,121	9,156	9,103	52	44	35	32	NA
Amador Street off-ramp	155	172	153	183	53	52	51	51	
Mainline between Amador Street off-ramp and San Pablo Dam Road off-ramp	8,965	8,949	9,003	8,921	56	45	33	31	F
San Pablo Dam Road off-ramp	444	392	462	465	57	55	55	54	
Mainline between San Pablo Dam Road off-ramp and on-ramp	8,521	8,557	8,541	8,456	49	30	29	27	F
San Pablo Dam Road on-ramp	989	925	1,055	915	33	10	9	8	
Mainline between San Pablo Dam Road on-ramp and El Portal Drive off-ramp	9,510	9,482	9,596	9,371	43	30	28	26	F
El Portal Drive off-ramp	1,093	1,106	1,170	1,404	54	54	54	54	
Mainline east of El Portal Drive off-ramp	9,246	9,185	9,295	8,801	58	58	57	58	E

Source: URS 2008a NA = Not analyzed

Figure 2.5-1 shows future No Build turning movement volumes for the study area intersections. Table 2.5-7A lists the summary (average) LOS for each study area intersection, and Table 2.5-7B lists LOS by each study intersection turning movement. Of the 13 local intersections evaluated under future No Build conditions, nine would have unacceptable levels of service during the AM peak hour, and eight would have unacceptable levels of service during the PM peak hour. Delays would exceed 50 to 80 seconds at nine (AM peak) and eight (PM peak) of the 13 intersections evaluated, indicating that drivers may queue and wait through more than one traffic signal cycle before passing through the intersection.

Table 2.5-7A Summary of Level of Service Analysis at Study Intersections: Future No Build Conditions

Intersection		AM Peak Hour			PM Peak Hour		
		V/C	Delay*	LOS	V/C	Delay*	LOS
1	San Pablo Avenue/San Pablo Dam Road	1.11	>80.0	F	1.19	>80.0	F
2	Contra Costa Avenue/San Pablo Dam Road	0.52	11.5	B	0.65	9.9	A
3	Ventura Avenue/San Pablo Dam Road	0.45	6.1	A	0.77	10.6	B
4	I-80 WB ramps/San Pablo Dam Road	1.5	>80.0	F	1.04	>80.0	F
5	Amador Street/San Pablo Dam Road/I-80 EB ramps	1.53	>80.0	F	1.6	>80.0	F
6	San Pablo Dam Road/Morrow Drive	0.66	4.2	A	0.8	5.9	A
7	Amador Street/Alpine Road	-	>50.0	F	-	27.1	D
8	I-80 WB off-ramp/McBryde Avenue/Humboldt Street	-	>50.0	F	-	>50.0	F
9	I-80 WB on-ramp/EI Portal Drive	-	>50.0	F	-	16.0	C
10	I-80 WB off-ramp/EI Portal Drive	1.13	>80.0	F	1.11	58.0	E
11	I-80 EB ramps/EI Portal Drive	1.02	>80.0	F	1.16	>80.0	F
12	I-80 WB on-ramp/Solano Avenue/Humboldt Street	-	>50.0	F	-	>50.0	F
13	I-80 EB off-ramp/Amador Street	-	32.1	D	-	>80.0	F

Source: URS 2008a

Notes: Delay represented is average delay at signalized intersections and average delay on controlled approaches at unsignalized intersections.

* Delay in seconds per vehicle

EB = Eastbound

LOS = Level of service

V/C = Maximum volume-to-capacity ratios at signalized intersections

WB = Westbound

**Table 2.5-7B Level of Service Analysis by Movement at Study Intersections:
Future No Build Conditions**

	Intersection	AM Peak Hour		PM Peak Hour	
		Delay(s)	LOS	Delay(s)	LOS
1	Entrance and San Pablo Avenue (Signalized)				
	EB Left/Through/Right	71.2	E	44.5	D
	WB Left	70.8	E	64.3	E
	WB Through/Right	52.1	D	53.1	D
	NB Left	72.7	E	47.8	D
	NB Through	>80	F	>80	F
	NB Right	63.9	E	>80	F
	SB Left	>80	F	>80	F
	SB Through/Right	30.3	C	30.4	C
2	Contra Costa and San Pablo Dam Road (Signalized)				
	NB Through/Left	46.3	D	40.5	D
	NB Right	44.1	D	38.8	D
	SB Through/Left	45.6	D	47	D
	SB Right	44.2	D	39.2	D
	EB Left	45.5	D	44.9	D
	EB Through/Right	3.7	A	5.7	A
	WB Left	49.4	D	68	E
	WB Through/Right	8.9	A	2.9	A
3	Ventura Avenue and San Pablo Dam Road (Signalized)				
	NB Left/Through/Right	33.1	C	36.2	D
	SB Left/Through/Right	34.9	C	54.1	D
	EB Left	37.5	D	56.9	E
	EB Through	4.3	A	6.2	A
	EB Right	3.1	A	2.4	A
	WB Left	37.2	D	47.9	D
	WB Through/Right	4.8	A	7.7	A
4	I-80 WB Off-Ramp and San Pablo Dam Road (Signalized)				
	SB Left	>80	F	50.6	D
	SB Through/Right	>80	F	59.1	E
	EB Through	50.4	D	>80	F
	EB Right	0.1	A	0.3	A
	WB Through/Left	>80	F	62.3	E
5	I-80 EB Off-Ramp and I-80 EB On-Ramp (Signalized)				
	NB Left	71	E	71.9	E
	NB Through	28.8	C	34.4	C
	SB Right	>80	F	>80	F
	WB Through/Left	69.1	E	>80	F
	WB Right	0.2	A	0.5	A
	EB Left/Right	>80	F	>80	F
6	Morrow Drive and San Pablo Dam Road (Signalized)				
	WB Left	26.8	C	25.4	C
	WB Right	24.6	C	22.2	C
	NB Through	3.8	A	8	A
	NB Right	2.7	A	2.5	A
	SB Left	28.9	C	27.4	C
	SB Through	3.8	A	2.3	A
7	Alpine Road and Amador Street (Unsignalized)				
	WB Left/Right	>50	F	27.1	D
	SB Through/Left	2.1	A	5.5	A

Table 2.5-7B Level of Service Analysis by Movement at Study Intersections: Future No Build Conditions

Intersection		AM Peak Hour		PM Peak Hour	
		Delay(s)	LOS	Delay(s)	LOS
8	McBryde Avenue and WB Off-Ramp (Unsignalized)				
	WB Through/Left	10.7	B	2.4	A
	NB Left/Through/Right	>50	F	>50	F
	SB Left	>50	F	>50	F
	SB Through/Right	16.5	C	11.9	B
9	EI Portal Drive and I-80 WB On-Ramp (Unsignalized)				
	WB Left	>50	F	16	C
10	EI Portal Drive and I-80 WB Off-Ramp (Signalized)				
	WB Left	>80	F	15.5	B
	NB Right	11	B	72.4	E
	SB Left	34.6	C	>80	F
	SB Through	>80	F	57.5	E
11	EI Portal Drive and I-80 EB On-Ramp (Signalized)				
	EB Left	25.4	C	>80	F
	EB Through	4.5	A	>80	F
	WB Through	>80	F	>80	F
	WB Right	10.8	B	39.4	D
	NB Through/Left	29.4	C	43.5	D
	NB Right	22	C	>80	F
12	Solano Avenue and Humboldt Street (Unsignalized)				
	WB Left/Through/Right	8.4	A	4.1	A
	SB Left/Through/Right	>50	F	>50	F
13	Amador Street and I-80 EB Off-Ramps (Unsignalized)				
	EB Left	33.4	D	>50	F
	EB Right	12.8	B	12.5	B

Source: URS 2008a

Notes: Delay in seconds per vehicle

EB = Eastbound

LOS = Level of service

NB = Northbound

SB = Southbound

WB = Westbound

2.5.3.2. Alternative 1 – Lanes Added Alternative

With Alternative 1, the traffic analysis projects that the I-80 freeway mainline segments would operate at or near capacity, and the significant bottlenecks predicted for the No Build condition would not develop. During the PM peak hour, all of the freeway mainline segments in the eastbound and westbound directions are projected to operate at unacceptable levels of service, except for the mainline segment between the San Pablo Dam Road on-ramp and off-ramp in the westbound direction. During the AM and PM peak hours in the westbound direction, overall traffic operations along the freeway mainline segments are projected to improve with Alternative 1 compared to No Build conditions. Tables 2.5-8 and 2.5-9 list future operating conditions for the freeway mainline and ramps with Alternative 1. Figure 2.5-2 shows

the Alternative 2 peak period turning movement volumes for the study area intersections.

Alternative 1 would improve operations at the intersections of (1) I-80 westbound ramps/San Pablo Dam Road, (2) Amador Street/San Pablo Dam Road/I-80 eastbound ramps, (3) Frontage Road (I-80 westbound off-ramp under existing conditions)/McBryde Avenue/Humboldt Street, (4) I-80 westbound ramps/El Portal Drive, and (5) I-80 eastbound ramps/El Portal Drive. Tables 2.5-10A and 2.5-10B list the operating conditions at the key intersections for future Alternative 1 conditions. Compared with the No Build Alternative (Table 2.5-7A), Alternative 1 would decrease delay time at the various intersections at the I-80/San Pablo Dam Road and I-80/El Portal Drive interchanges and improve levels of service at Intersections 4, 5, 10, and 11 in Table 2.5-10A from unacceptable (LOS E or F) to acceptable (LOS D or better).

Table 2.5-8 AM Peak Period Comparison of Traffic Conditions –Alternative 1

Segments	Traffic Volumes				Average (Mean) Speeds (MPH)				Level of Service
	5:00 – 6:00	6:00 – 7:00	7:00 – 8:00	8:00 – 9:00	5:00 – 6:00	6:00 – 7:00	7:00 – 8:00	8:00 – 9:00	
Westbound									
Mainline east of El Portal Drive off-ramp	7,888	8,747	8,718	8,648	52	44	42	35	F
El Portal Drive off-ramp	248	362	703	910	59	57	54	53	
Mainline between El Portal Drive off-ramp and on-ramp	7,640	8,385	8,015	7,738	54	53	54	55	F
El Portal Drive on-ramp	411	723	983	756	60	59	59	59	
Mainline between El Portal Drive on-ramp and San Pablo Dam Road off-ramp	8,051	9,107	8,998	8,494	57	54	53	56	F
San Pablo Dam Road off-ramp	975	1,448	1,865	2,136	58	57	55	56	
Mainline between San Pablo Dam Road off-ramp and on-ramp	7,076	7,660	7,133	6,357	56	56	57	58	E
San Pablo Dam Road on-ramp	607	1,008	1,391	1,437	60	59	59	59	
Mainline between San Pablo Dam Road on-ramp and McBryde Avenue off-ramp	7,683	8,668	8,524	7,794	58	57	55	58	E
McBryde Avenue off-ramp									
Mainline between McBryde Avenue off-ramp and Solano Avenue on-ramp					57	56	57	57	E
Solano Avenue on-ramp	366	679	1,066	922	60	55	23	18	

Table 2.5-8 AM Peak Period Comparison of Traffic Conditions –Alternative 1

Segments	Traffic Volumes				Average (Mean) Speeds (MPH)				Level of Service
	5:00 – 6:00	6:00 – 7:00	7:00 – 8:00	8:00 – 9:00	5:00 – 6:00	6:00 – 7:00	7:00 – 8:00	8:00 – 9:00	
Mainline west of Solano Avenue on-ramp	8,049	9,346	9,590	8,716	57	56	54	53	E
Eastbound									
Mainline west of Amador Street off-ramp	2,526	4,559	7,209	8,064	59	58	52	37	NA
Amador Street off-ramp	37	77	211	343	55	54	52	49	
Mainline between Amador Street off-ramp and San Pablo Dam Road off-ramp	2,489	4,482	6,998	7,721	59	58	54	50	C
San Pablo Dam Road off-ramp	143	299	534	740	60	60	59	57	
Mainline between San Pablo Dam Road off-ramp and on-ramp	2,346	4,184	6,464	6,981	59	58	56	54	C
San Pablo Dam Road on-ramp	84	179	366	444	60	60	60	58	
Mainline between San Pablo Dam Road on-ramp and El Portal Drive off-ramp	2,430	4,363	6,830	7,425	59	58	57	55	C
El Portal Drive off-ramp	91	226	637	804	60	59	58	58	
Mainline east of El Portal Drive off-ramp	2,447	4,345	6,576	7,006	59	58	57	57	C

Source: URS 2008a

NA = Not analyzed

Table 2.5-9 PM Peak Period Comparison of Traffic Conditions –Alternative 1

Segments	Traffic Volumes				Average (Mean) Speeds (MPH)				Level of Service
	5:00 – 6:00	6:00 – 7:00	7:00 – 8:00	8:00 – 9:00	5:00 – 6:00	6:00 – 7:00	7:00 – 8:00	8:00 – 9:00	
Westbound									
Mainline east of El Portal Drive off-ramp	7,883	7,872	7,716	7,084	49	48	49	52	F
El Portal Drive off-ramp	441	499	504	457	58	58	57	58	
Mainline between El Portal Drive off-ramp and on-ramp	7,442	7,373	7,212	6,627	57	57	57	58	E
El Portal Drive on-ramp	598	555	556	484	60	60	60	60	
Mainline between El Portal Drive on-ramp and San Pablo Dam Road off-ramp	8,040	7,927	7,768	7,111	57	57	57	58	F
San Pablo Dam Road off-ramp	1,062	1,108	1,094	1,087	58	58	58	58	
Mainline between San Pablo Dam Road off-ramp and on-ramp	6,978	6,820	6,674	6,025	58	58	58	58	D
San Pablo Dam Road on-ramp	1,149	1,053	1,120	1,017	59	59	59	60	
Mainline between San Pablo Dam Road on-ramp and McBryde Avenue off-ramp	8,128	7,873	7,794	7,042	56	57	57	57	E
McBryde Avenue off-ramp									
Mainline between McBryde Avenue off-ramp and Solano Avenue on-ramp					58	58	58	58	E
Solano Avenue on-ramp	459	378	387	401	60	60	60	60	
Mainline west of Solano Avenue on-ramp	8,587	8,251	8,181	7,443	57	57	57	57	E
Eastbound									
Mainline west of Amador Street off-ramp	8,937	9,036	9,156	8,909	45	42	42	40	NA
Amador Street off-ramp	104	115	102	122	51	51	51	51	
Mainline between Amador Street off-ramp and San Pablo Dam Road off-ramp	8,833	8,921	9,054	8,787	48	42	42	37	F
San Pablo Dam Road off-ramp	796	703	829	835	55	55	54	54	
Mainline between San Pablo Dam Road off-ramp and on-ramp	8,037	8,218	8,224	7,952	44	34	35	31	F
San Pablo Dam Road on-ramp	1,295	1,212	1,382	1,199	21	10	9	9	
Mainline between San Pablo Dam Road on-ramp and El Portal Drive off-ramp	9,332	9,430	9,606	9,151	37	32	30	28	F
El Portal Drive off-ramp	1,089	1,102	1,166	1,399	55	55	55	54	
Mainline east of El Portal Drive off-ramp	9,119	9,182	9,358	8,633	57	57	57	57	E

Source: URS 2008a

NA = Not analyzed

Table 2.5-10A Summary of Level of Service Analysis at Study Intersections—Future Alternative 1 Conditions

Intersection		AM Peak Hour			PM Peak Hour		
		V/C	Delay*	LOS	V/C	Delay*	LOS
1	San Pablo Avenue/San Pablo Dam Road	1.07	>80.0	F	1.37	>80.0	F
2	Contra Costa Avenue/San Pablo Dam Road	0.49	9.6	A	0.68	15.1	B
3	Ventura Avenue/San Pablo Dam Road	0.54	7.0	A	0.9	18.4	B
4	I-80 WB ramps/San Pablo Dam Road	1.02	50.0	D	0.93	32.4	C
5	Amador Street/San Pablo Dam Road/I-80 EB ramps	0.9	37.3	D	0.99	54.2	D
6	San Pablo Dam Road/Morrow Drive	0.66	4.2	A	0.71	4.6	A
7	Amador Street/Alpine Road		>50.0	F		31.0	D
8	Frontage Road/McBryde Avenue/Humboldt Street	0.69	29.8	C	0.74	36.9	D
9	I-80 WB on-ramp/EI Portal Drive	Will not exist.					
10	I-80 WB ramps/EI Portal Drive	0.83	40.3	D	0.93	51.7	D
11	I-80 EB ramps/EI Portal Drive	0.72	25.2	C	0.99	48.7	D
12	I-80 WB on-ramp/Solano Avenue/Humboldt Street		>50.0	F		>50.0	F
13	I-80 EB off-ramp/Amador Street		36.2	E		>50.0	F

Source: URS 2008a

Notes: Delay represented is average delay at signalized intersections and average delay on controlled approaches at unsignalized intersections.

* Delay in seconds per vehicle

EB = Eastbound

LOS = Level of service

V/C = Maximum volume-to-capacity ratios at signalized intersections

WB = Westbound

Table 2.5-10B Level of Service Analysis by Movement at Study Intersections: Future Alternative 1 Conditions

Intersection		AM Peak Hour		PM Peak Hour	
		Delay(s)	LOS	Delay(s)	LOS
1	Entrance and San Pablo Avenue (Signalized)				
	EB Left/Through/Right	71.1	E	64.2	E
	WB Left	63	E	>80	F
	WB Through/Right	46	D	>80	F
	NB Left	72.2	E	66.4	E
	NB Through	>80	F	>80	F
	NB Right	>80	F	>80	F
	SB Left	>80	F	>80	F
2	Contra Costa and San Pablo Dam Road (Signalized)				
	NB Through/Left	46.3	D	40.5	D
	NB Right	44.2	D	38.8	D
	SB Through/Left	45.8	D	47	D
	SB Right	44.3	D	39.2	D
	EB Left	47.8	D	46.7	D
	EB Through/Right	4.8	A	12.7	B
	WB Left	48	D	45.6	D
3	Ventura Avenue and San Pablo Dam Road (Signalized)				
	NB Left/Through/Right	32.8	C	30.8	C
	SB Left/Through/Right	35.3	D	51.2	D
	EB Left	37.5	D	47.3	D
	EB Through	5.9	A	20	B
	EB Right	3.8	A	6.8	A
	WB Left	35	D	42.8	D
	WB Through/Right	5.3	A	8.9	A
4	I-80 WB Off-Ramp and San Pablo Dam Road (Signalized)				
	EB Left	31.4	C	22.3	C
	EB Through	76.2	E	49.7	D
	EB Right	43.6	D	22.8	C
	NB Through	59.8	E	28.9	C
	NB Right	35.3	D	41.4	D
	WB Left	61.6	E	42.7	D
	WB Through	9.5	A	5.1	A
5	I-80 EB Off-Ramp and I-80 EB On-Ramp				
	NB Left	63.2	E	54.1	D
	NB Right	57.5	E	54.4	D
	SB Right	38.4	D	62.9	E
	WB Left	80.2	F	40.7	D
	WB Through			58.6	E
	WB Right	56.6	E	>80	F
	EB Left	76.1	E	76.2	E
6	Morrow Drive and San Pablo Dam Road (Signalized)				
	WB Left	29.5	C	40.1	D
	WB Right	26.7	C	36.8	D
	NB Through	3.9	A	5.5	A
	NB Right	2.5	A	1.9	A
	SB Left	31.3	C	45.2	D
	SB Through	3.6	A	1.8	A

Table 2.5-10B Level of Service Analysis by Movement at Study Intersections: Future Alternative 1 Conditions

	Intersection	AM Peak Hour		PM Peak Hour	
		Delay(s)	LOS	Delay(s)	LOS
7	Alpine Road and Amador Street (Unsignalized)				
	WB Left/Right	>50	F	31	D
	SB Through/Left	2	A	5.1	A
8	McBryde Avenue and WB Off-Ramp (Signalized)				
	EB Through/Right	27.6	C	33.3	C
	WB Through/Left	29.5	C	32.9	C
	NB Left	46.9	D	41.7	D
	SB Left	27.2	C	40.4	D
	SB Through	27.3	C	41.9	D
	SB Right	26.9	C	25.3	C
9	EI Portal Drive and I-80 WB On-Ramp (Will not exist)				
10	EI Portal Drive and I-80 WB Off-Ramp (Signalized)				
	EB Through	29.7	C	>80	F
	EB Right	36.2	D	33.6	C
	WB Left	42.1	D	15.4	B
	WB Through	9.2	A	6.6	A
	SB Left	33.8	C	63.3	E
	SB Right	>80	F	33.2	C
11	EI Portal Drive and I-80 EB On-Ramp (Signalized)				
	EB Left	35.7	D	43	D
	EB Through	10.3	B	24.4	C
	WB Through	19	B	30.2	C
	WB Right	12.5	B	25.2	C
	NB Left	67.4	E	>80	F
	NB Through	31.4	C	43	D
12	Solano Avenue and Humboldt Street (Unsignalized)				
	WB Left/Through/Right	6.2	A	3.6	A
	SB Left/Through/Right	>50	F	>50	F
13	Amador Street and I-80 EB Off-Ramps (Unsignalized)				
	EB Left	37.6	E	>50	F
	EB Right	12.5	B	12.3	B

Source: URS 2008a

Notes: Delay in seconds per vehicle

EB = Eastbound

LOS = Level of service

NB = Northbound

SB = Southbound

WB = Westbound

The following are changes to intersections that are predicted to continue to operate at LOS E or F under future Alternative 1 conditions:

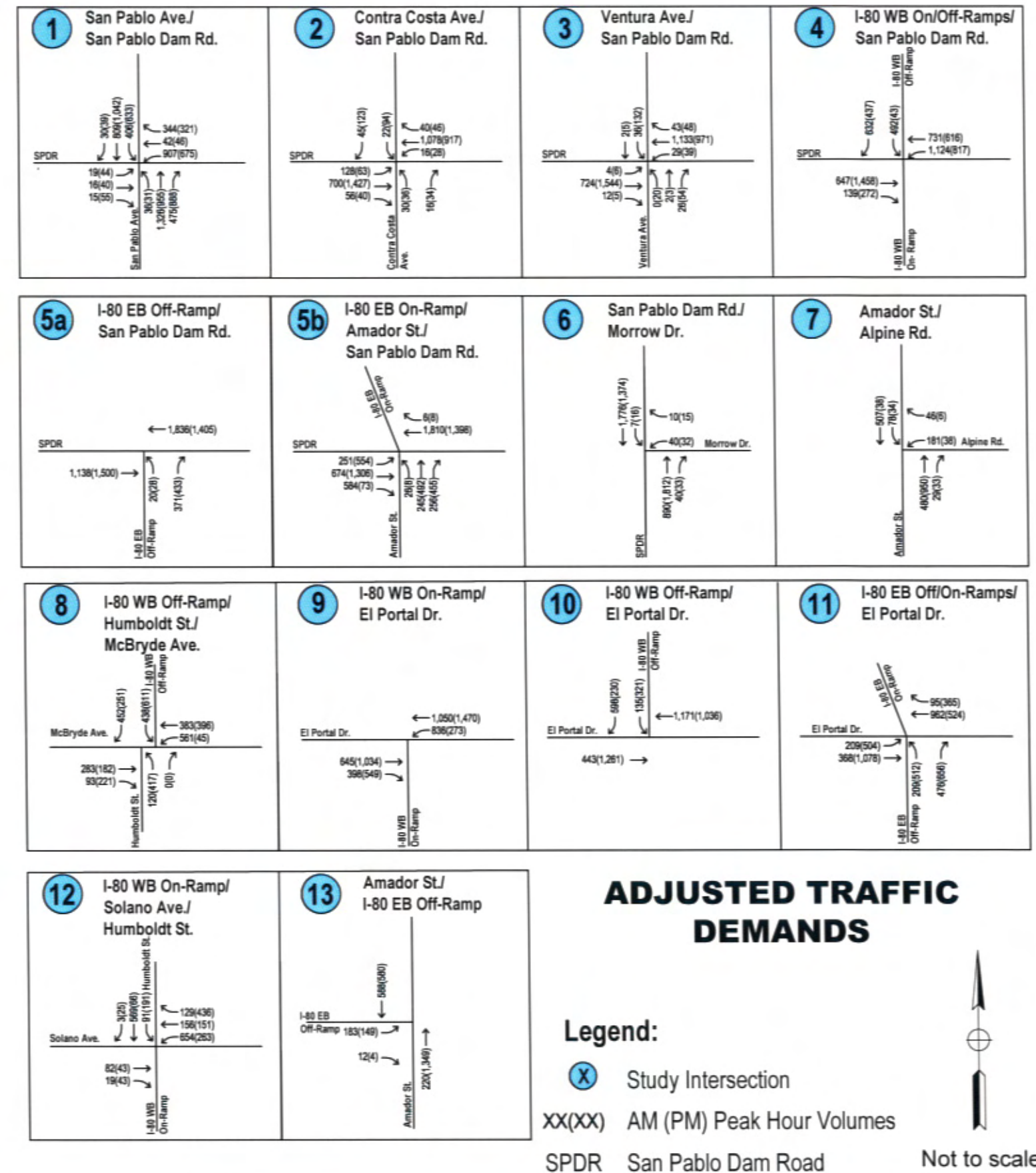
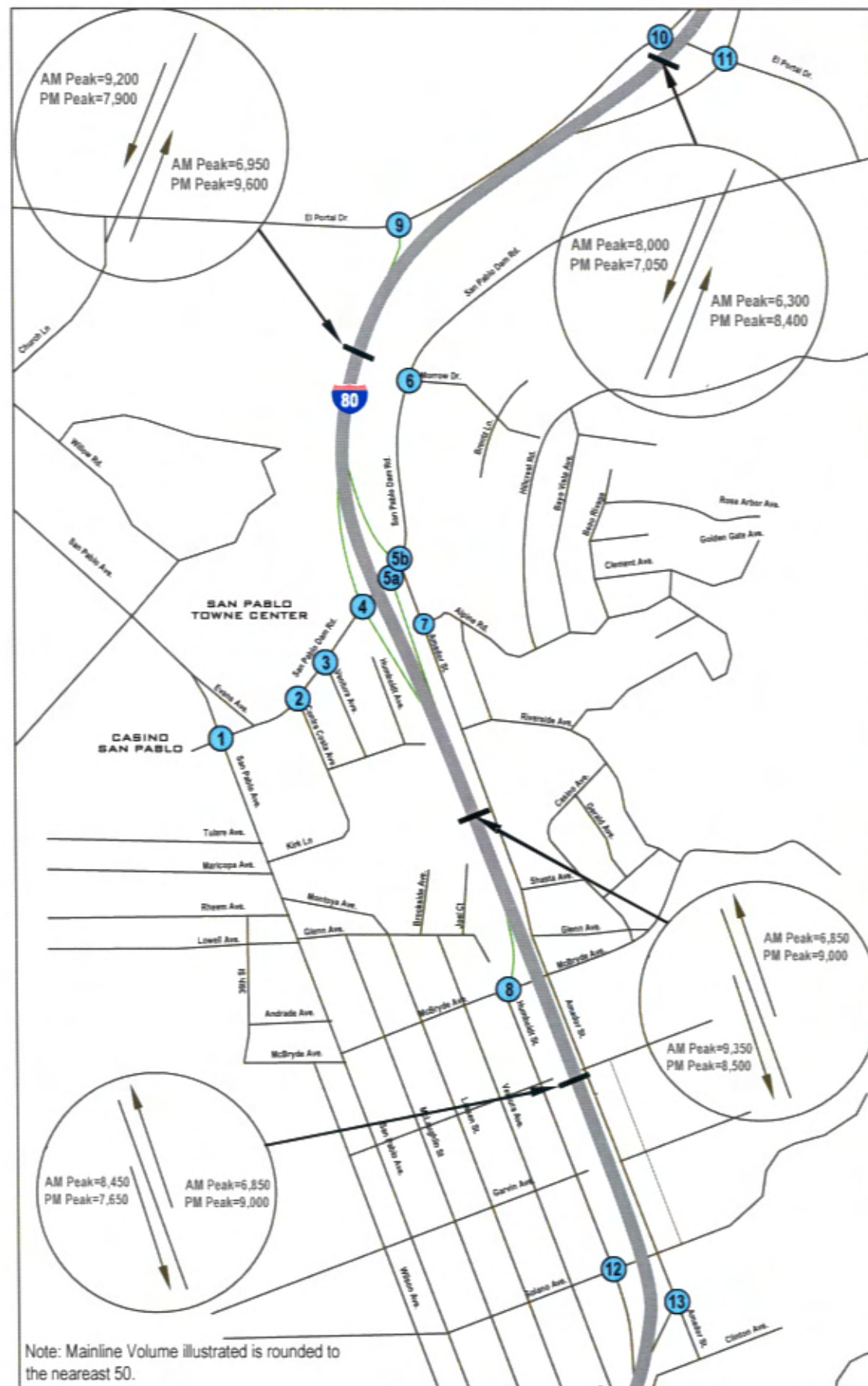
- San Pablo Avenue/San Pablo Dam Road and the I-80 westbound ramps/Solano Avenue/Humboldt Street intersection would continue to operate at LOS F with the same delay as the No Build Alternative (no change).

- The level of service at Amador Street/Alpine Drive would remain the same, but the PM delay would be slightly longer (four seconds). Amador Street/Alpine Drive is a three-leg intersection, with a stop sign on Alpine Drive and no stop signs on Amador Street. Future traffic increases under the No Build condition would result in LOS F and D in the AM and PM peak periods, respectively. Alternative 1 would slightly add to, but not substantially change, the delays that would ultimately occur at this location.
- The I-80 eastbound off-ramp/Amador Street intersection would remain the same in the PM, but the delay would be longer in the AM (four seconds longer than with the No Build Alternative). The LOS would decrease from D to E. This impact results from increased traffic capacity on San Pablo Dam Road passing through the eastbound I-80 off-ramp/San Pablo Dam Road intersection and the Amador Street/San Pablo Dam Road intersection. The two intersections are close enough in proximity that the off-ramp and Amador Street traffic turning on and off of San Pablo Dam Road must be constrained through signal timing and cannot adequately handle the increased volumes.

2.5.3.3. Alternative 2 – Tight Diamond Alternative

With Alternative 2, all of the freeway mainline segments in the westbound direction are projected to operate at unacceptable levels of service in the AM peak hour, similar to the No Build Alternative and Alternative 1. The freeway mainline segments are anticipated to operate at or near capacity, and the significant bottlenecks predicted for the No Build condition would not develop. During the PM peak hour, all of the study mainline segments are projected to operate at unacceptable levels of service except the mainline segment between the San Pablo Dam Road on-ramp and off-ramp in the westbound direction. During peak periods, Alternative 2 would generally reduce delays and improve levels of service compared with the No Build Alternative. It should also be noted that, based on the projected traffic demand, Alternative 2 would result in less “cut-through traffic” using city streets to avoid congestion on I-80 compared to future No Build and Alternative 1 conditions. Tables 2.5-11 and 2.5-12 list future operating conditions for Alternative 2 for the freeway mainline and ramps. Figure 2.5-3 shows peak period turning movement volumes for the study area intersections.

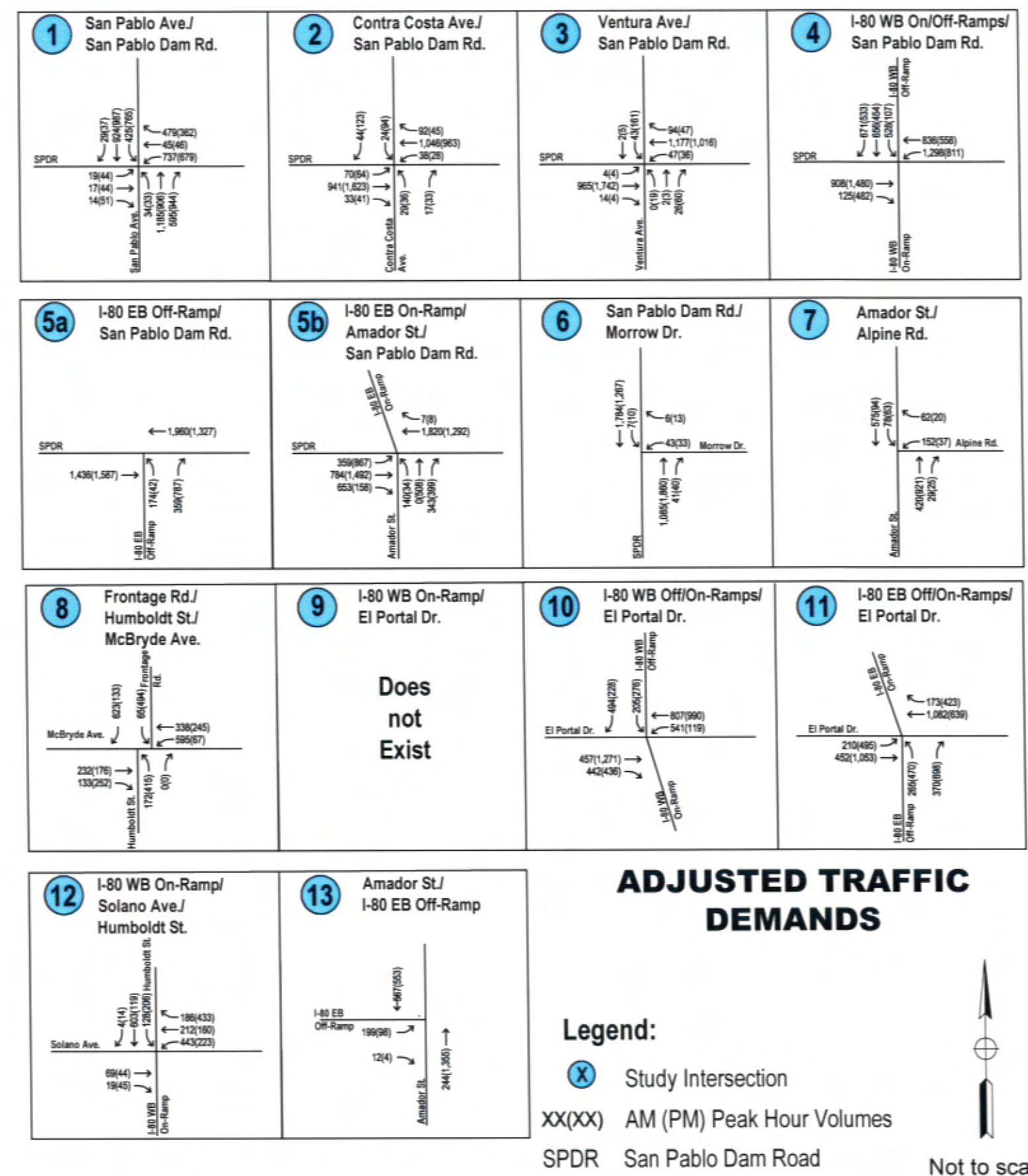
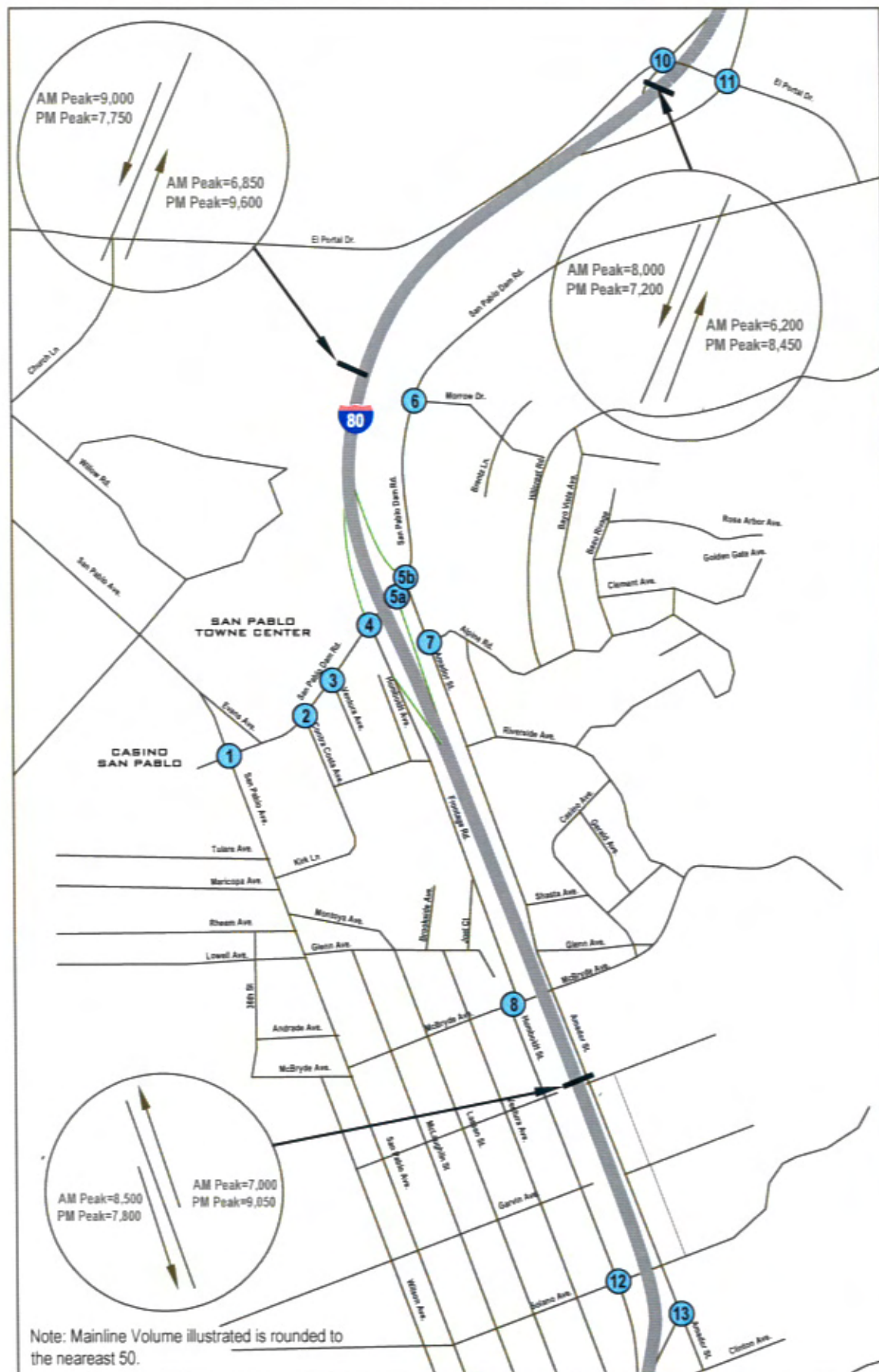
With Alternative 2, the project would make improvements at the same intersections as proposed for Alternative 1. The primary difference is that Alternative 2 would realign the Amador Street/San Pablo Dam Road intersection to the east, away from the I-80 eastbound off-ramp, allowing for improved signal timing. The San Pablo Dam Road Overcrossing would have six lanes, compared with seven lanes under Alternative 1.



I-80/San Pablo Dam Road Interchange Project

FUTURE NO-BUILD CONDITIONS PEAK HOUR TURNING MOVEMENT VOLUMES

Figure 2.5-1



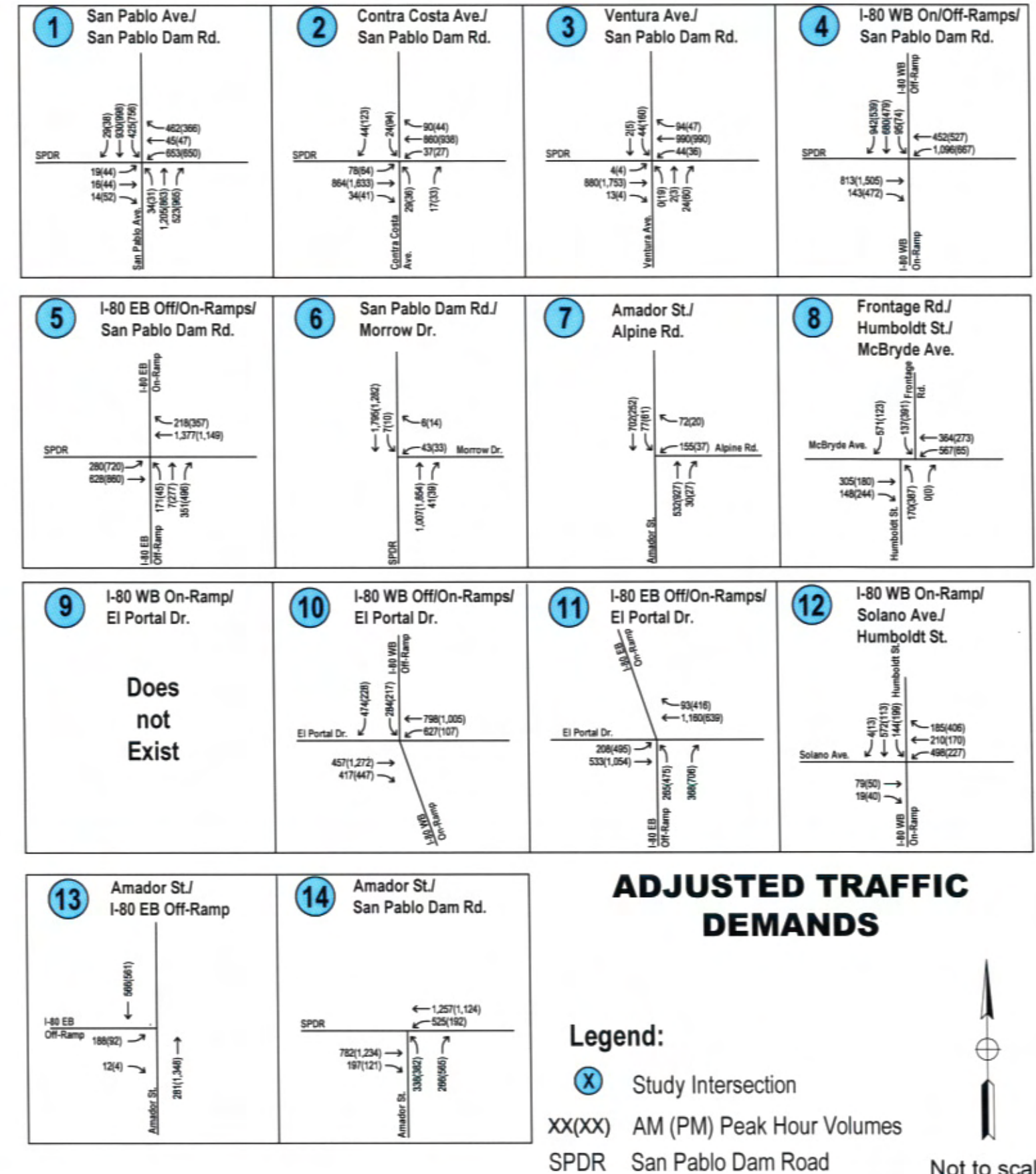
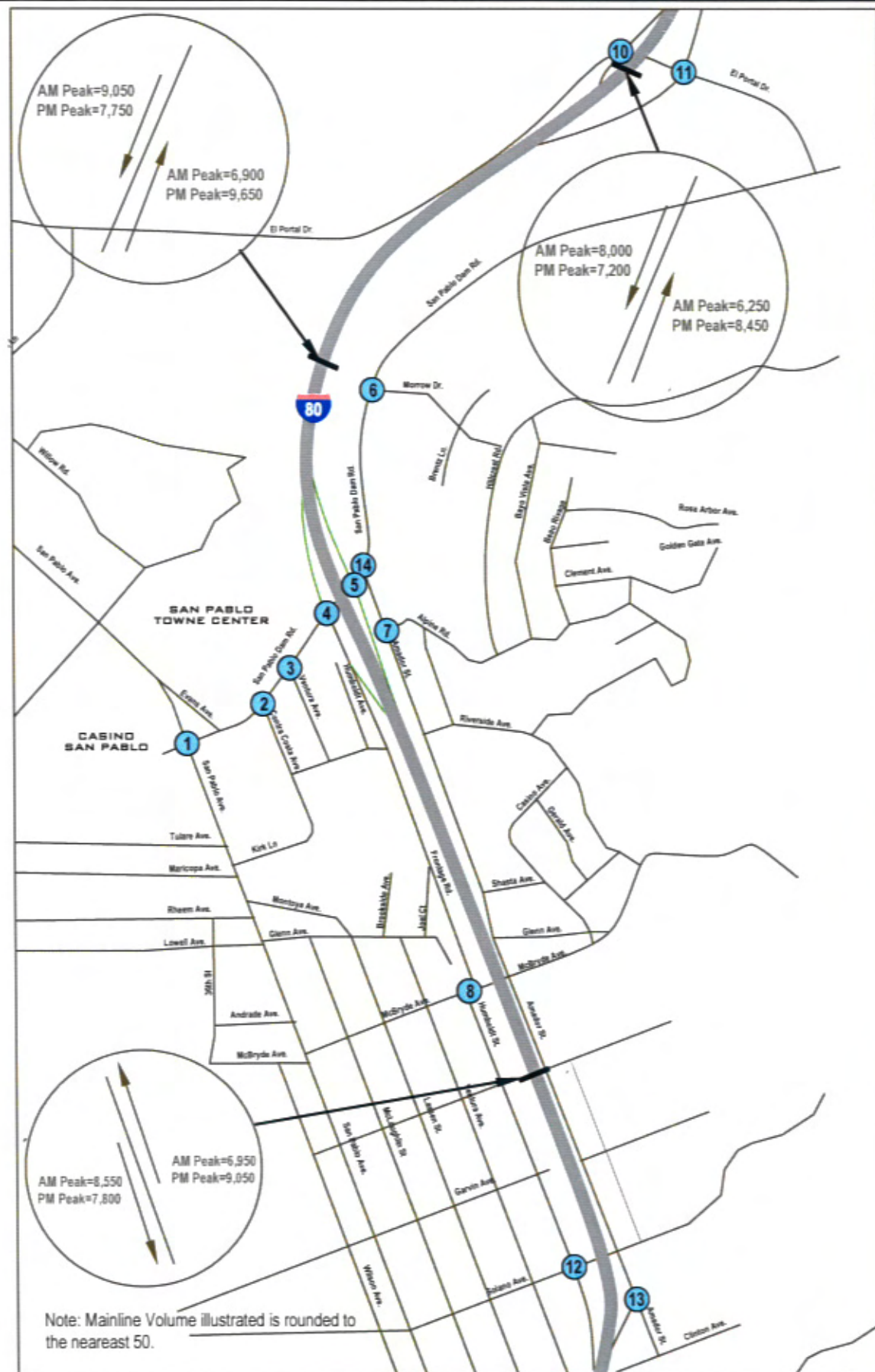


Table 2.5-11 AM Peak Period Comparison of Traffic Conditions – Alternative 2

Segments	Traffic Volumes				Average (Mean) Speeds (MPH)				Level of Service
	5:00 – 6:00	6:00 – 7:00	7:00 – 8:00	8:00 – 9:00	5:00 – 6:00	6:00 – 7:00	7:00 – 8:00	8:00 – 9:00	
Westbound									
Mainline east of El Portal Drive off-ramp	7,938	8,813	8,782	8,708	51	42	37	33	F
El Portal Drive off-ramp	269	393	761	985	58	56	54	53	
Mainline between El Portal Drive off-ramp and on-ramp	7,669	8,420	8,021	7,722	54	53	52	56	F
El Portal Drive on-ramp	435	765	1,041	800	60	59	58	59	
Mainline between El Portal Drive on-ramp and San Pablo Dam Road off-ramp	8,104	9,185	9,062	8,523	57	53	51	56	F
San Pablo Dam Road off-ramp	903	1,340	1,726	1,977	58	57	56	57	
Mainline between San Pablo Dam Road off-ramp and on-ramp	7,201	7,845	7,335	6,545	56	56	57	58	E
San Pablo Dam Road on-ramp	528	878	1,211	1,251	60	60	59	59	
Mainline between San Pablo Dam Road on-ramp and McBryde Avenue off-ramp	7,730	8,723	8,546	7,796	59	58	57	58	E
McBryde Avenue off-ramp									
Mainline between McBryde Avenue off-ramp and Solano Avenue on-ramp					57	56	57	58	E
Solano Avenue on-ramp	374	693	1,089	942	60	56	22	27	
Mainline west of Solano Avenue on-ramp	8,104	9,416	9,635	8,738	57	56	54	53	E
Eastbound									
Mainline west of Amador Street off-ramp	2,325	4,413	7,133	8,010	59	58	53	37	NA
Amador Street off-ramp	35	73	200	325	55	55	53	49	
Mainline between Amador Street off-ramp and San Pablo Dam Road off-ramp	2,290	4,340	6,933	7,685	60	59	55	49	E
San Pablo Dam Road off-ramp	142	296	530	734	60	60	58	57	
Mainline between San Pablo Dam Road off-ramp and on-ramp	2,148	4,043	6,402	6,951	59	58	56	52	E
San Pablo Dam Road on-ramp	116	247	505	613	60	60	59	44	
Mainline between San Pablo Dam Road on-ramp and El Portal Drive off-ramp	2,264	4,290	6,908	7,564	59	58	57	45	E
El Portal Drive off-ramp	91	225	634	800	60	59	58	57	
Mainline east of El Portal Drive off-ramp	2,258	4,229	6,575	7,066	59	58	57	57	C

Source: URS 2008a

NA = Not analyzed

Table 2.5-12 PM Peak Period Comparison of Traffic Conditions – Alternative 2

Segments	Traffic Volumes				Average (Mean) Speeds (MPH)				Level of Service
	5:00 – 6:00	6:00 – 7:00	7:00 – 8:00	8:00 – 9:00	5:00 – 6:00	6:00 – 7:00	7:00 – 8:00	8:00 – 9:00	
Westbound									
Mainline east of El Portal Drive off-ramp	7,897	7,885	7,721	7,054	49	48	50	52	F
El Portal Drive off-ramp	442	500	505	458	58	57	58	59	
Mainline between El Portal Drive off-ramp and on-ramp	7,456	7,385	7,216	6,597	57	57	57	58	E
El Portal Drive on-ramp	596	553	554	483	60	60	60	60	
Mainline between El Portal Drive on-ramp and San Pablo Dam Road off-ramp	8,051	7,938	7,770	7,079	56	56	57	58	F
San Pablo Dam Road off-ramp	1,061	1,107	1,093	1,086	58	58	58	58	
Mainline between San Pablo Dam Road off-ramp and on-ramp	6,990	6,831	6,677	5,994	58	58	58	58	D
San Pablo Dam Road on-ramp	1,129	1,034	1,100	999	59	59	59	60	
Mainline between San Pablo Dam Road on-ramp and McBryde Avenue off-ramp	8,119	7,865	7,777	6,992	56	57	57	57	E
McBryde Avenue off-ramp									
Mainline between McBryde Avenue off-ramp and Solano Avenue on-ramp					58	58	58	58	E
Solano Avenue on-ramp	465	383	392	406	60	60	60	60	
Mainline west of Solano Avenue on-ramp	8,584	8,248	8,169	7,399	57	57	57	57	E
Eastbound									
Mainline west of Amador Street off-ramp	9,120	9,121	9,156	9,103	45	42	43	37	NA
Amador Street off-ramp	97	108	96	114	50	51	51	50	
Mainline between Amador Street off-ramp and San Pablo Dam Road off-ramp	9,023	9,013	9,060	8,989	48	41	41	36	F
San Pablo Dam Road off-ramp	786	694	819	824	55	55	54	54	
Mainline between San Pablo Dam Road off-ramp and on-ramp	8,236	8,319	8,241	8,165	44	34	35	29	F
San Pablo Dam Road on-ramp	1,319	1,234	1,407	1,220	19	9	9	8	
Mainline between San Pablo Dam Road on-ramp and El Portal Drive off-ramp	9,555	9,553	9,648	9,385	38	31	31	27	F
El Portal Drive off-ramp	1,107	1,120	1,185	1,422	55	55	54	54	
Mainline east of El Portal Drive off-ramp	9,318	9,281	9,375	8,838	57	57	57	58	E

Source: URS 2008a

NA = Not analyzed

With the proposed improvements, four of the study intersections—San Pablo Avenue/San Pablo Dam Road, Amador Street/Alpine Road, the I-80 westbound on-ramp/Solano Avenue/Humboldt Street, and the I-80 eastbound off-ramp/Amador Street—are projected to operate at unacceptable levels of service under future Alternative 2 conditions (Tables 2.5-13A and 2.5-13B). The same would be true for the No Build and Alternative 1 conditions. All five intersections proposed for improvement with this alternative (I-80 westbound ramps/San Pablo Dam Road, Amador Street/San Pablo Dam Road/I-80 eastbound ramps, Frontage Road [I-80 westbound off-ramp under existing conditions]/McBryde Avenue/Humboldt Street, I-80 westbound ramps/El Portal Drive, and I-80 eastbound ramps/El Portal Drive) are projected to operate at acceptable levels of service during both AM and PM peak hours.

The average delays at the intersections of the San Pablo Dam Road/I-80 westbound and eastbound off-ramps are projected to be shorter than those under Alternative 1 (Intersections 4 and 5). The realignment of Amador Street under Alternative 2 would reduce congestion and conflicting turning movements at the intersection of the I-80 eastbound ramps and San Pablo Dam Road.

Intersections 4, 5, 10, and 11 in Table 2.5-13A would improve from unacceptable (LOS E or F) to acceptable (D or better) compared with future No Build conditions. The following are changes to intersections that are predicted to continue to operate at LOS E or F under future Alternative 2 conditions:

- San Pablo Avenue/San Pablo Dam Road and the I-80 westbound on-ramp/Solano Avenue/Humboldt Street intersection would continue to operate at LOS F with the same delay as the No Build Alternative (no change).
- Level of service at Amador Street/Alpine Road would remain the same, but the PM delay would increase by more than ten seconds (an impact with this alternative). This change is associated with increased traffic on Amador Street as discussed for Alternative 1.
- Delays at the I-80 eastbound off-ramp/Amador Street and Amador Street/San Pablo Dam Road intersections would decrease with Alternative 2 because of the realignment/separation of the intersections.

**Table 2.5-13A Summary of Level of Service Analysis at Study Intersections—
Future Alternative 2 Conditions**

Intersection		AM Peak Hour			PM Peak Hour		
		V/C	Delay*	LOS	V/C	Delay*	LOS
1	San Pablo Avenue/San Pablo Dam Road	1.04	>80.0	F	1.35	>80.0	F
2	Contra Costa Avenue/San Pablo Dam Road	0.43	10.3	B	0.66	15.0	B
3	Ventura Avenue/San Pablo Dam Road	0.49	7.1	A	0.8	19.9	B
4	I-80 WB ramps/San Pablo Dam Road	0.95	37.3	D	0.99	51.8	D
5	I-80 EB ramps/San Pablo Dam Road	0.77	44.2	D	0.93	41.9	D
6	San Pablo Dam Road/Morrow Drive	0.66	5.0	A	0.68	4.7	A
7	Amador Street/Alpine Road		>50.0	F		39.5	E
8	Frontage Road/McBryde Avenue/Humboldt Street	0.82	46.9	D	0.78	42.4	D
9	I-80 WB on-ramp/EI Portal Drive	Will not exist.					
10	I-80 WB ramps/EI Portal Drive	0.85	35.0	D	0.77	20.14	C
11	I-80 EB ramps/EI Portal Drive	0.74	27.9	C	0.98	50.1	D
12	I-80 WB on-ramp/Solano Avenue/Humboldt Street		>50.0	F		>50.0	F
13	I-80 eastbound off-ramp/Amador Street		37.5	E		>50.0	F
14	Amador Street/San Pablo Dam Road		29.4	C		33.9	C

Source: URS 2008a

Notes: Delay represented is average delay at signalized intersections and average delay on controlled approaches at unsignalized intersections.

* Delay in seconds per vehicle

EB = Eastbound

LOS = Level of service

V/C = Maximum volume-to-capacity ratios at signalized intersections

WB = Westbound

Table 2.5-13B Level of Service Analysis by Movement at Study Intersections: Future Alternative 2 Conditions

Intersection		AM Peak Hour		PM Peak Hour	
		Delay(s)	LOS	Delay(s)	LOS
1	Entrance and San Pablo Avenue (Signalized)				
	EB Left/Through/Right	71.2	E	69.2	E
	WB Left	61.8	E	>80	F
	WB Through/Right	46.3	D	61	E
	NB Left	72.2	E	72	E
	NB Through	>80	F	>80	F
	NB Right	73.7	E	>80	F
	SB Left	>80	F	>80	F
2	Contra Costa and San Pablo Dam Road (Signalized)				
	NB Through/Left	46.3	D	49.8	D
	NB Right	44.2	D	47.5	D
	SB Through/Left	45.8	D	60	E
	SB Right	44.3	D	47.9	D
	EB Left	48.7	D	59.1	E
	EB Through/Right	5.5	A	10.4	B
	WB Left	44.8	D	58.2	E
3	Ventura Avenue and San Pablo Dam Road (Signalized)				
	NB Left/Through/Right	32.7	C	34.1	C
	SB Left/Through/Right	35.7	D	55.7	E
	EB Left	37.5	D	53.4	D
	EB Through	6.4	A	21.8	C
	EB Right	4.3	A	7.5	A
	WB Left	32.8	C	45.6	D
	WB Through/Right	4.7	A	8.9	A
4	I-80 WB Off-Ramp and San Pablo Dam Road (Signalized)				
	SB Through/Left	38.2	D	61.6	E
	SB Right	30.5	C	>80	F
	EB Through/Left	45.2	D	72	E
	EB Right	15.9	B	9.6	A
5	I-80 EB Off-Ramp and I-80 EB On-Ramp (Signalized)				
	NB Through/Left	20.7	C	39.5	D
	NB Right	19.7	B	34.6	C
	EB Left	27.9	C	59	E
	EB Through	33.2	C	7.6	A
6	Morrow Drive and San Pablo Dam Road (Signalized)				
	WB Left	30.2	C	48.6	D
	WB Right	27.8	C	45	D
	NB Through	5.1	A	5.4	A
	NB Right	3.2	A	1.8	A
	SB Left	29.7	C	54.6	D
7	Alpine Road and Amador Street (Unsignalized)				
	WB Left/Right	>50	F	39.5	E
	SB Through/Left	2.2	A	3.2	A
8	McBryde Avenue and WB Off Ramp (Signalized)				
	EB Through/Right	36.7	D	28.6	C
	WB Left	>80	F	23.3	C
	WB Through	26.7	C	35.3	D

Table 2.5-13B Level of Service Analysis by Movement at Study Intersections: Future Alternative 2 Conditions

	Intersection	AM Peak Hour		PM Peak Hour	
		Delay(s)	LOS	Delay(s)	LOS
	NB Left	37.8	D	>80	F
	SB Left	34.1	C	32.9	C
	SB Through	31.5	C	33.7	C
	SB Right	31	C	23.6	C
10	EI Portal Drive and I-80 WB Off-Ramp (Signalized)				
	EB Through	31.8	C	14.9	B
	EB Right	37.2	D	12.5	B
	WB Left	23.1	C	38	D
	WB Through	2.7	A	15.8	B
	SB Left	51	D	55.3	E
	SB Right	>80	F	41.4	D
11	EI Portal Drive and I 80 EB On-Ramp (Signalized)				
	EB Left	13.6	B	38.7	D
	EB Through	9.8	A	17.5	B
	WB Through	32.1	C	34.9	C
	WB Right	16.5	B	29.9	C
	NB Left	57.1	E	>80	F
	NB Through	30.7	C	52.2	D
	NB Right	30.7	C	0.4	A
12	Solano Avenue and Humboldt Street (Unsignalized)				
	WB Left/Through/Right	6.8	A	3.7	A
	SB Left/Through/Right	>50	F	>50	F
13	Amador Street and I-80 EB Off-Ramps (Unsignalized)				
	EB Left	39.1	E	>50	F
	EB Right	12.5	B	12.3	B

Source: URS 2008a

Notes: Delay in seconds per vehicle

EB = Eastbound

LOS = Level of service

NB = Northbound

SB = Southbound

WB = Westbound

2.5.3.4. Comparison of Traffic Operating Conditions Among Alternatives

This section summarizes the operational analysis for future conditions along the freeway mainline with respect to the following performance measures: number of vehicles, total distance traveled, total travel time, average network speed, and total network delay.

Table 2.5-14 and the following summarize the measures of effectiveness for future No Build and Alternatives 1 and 2 conditions:

- The total number of vehicles in the AM peak period is projected to increase by approximately 20 percent with Alternative 1 and 17 percent with Alternative 2,

and in the PM increase by approximately four percent with both build alternatives.

- The total travel time in the AM peak period is projected to decrease by approximately 19 percent with Alternative 1 and 12 percent with Alternative 2.
- The total distance traveled in the AM peak period is projected to increase by approximately 28 percent with Alternative 1 and 24 percent with Alternative 2, and in the PM increase by approximately nine percent with both build alternatives.
- The average speed in the AM peak period is projected to increase by approximately 54 percent with Alternative 1 and 38 percent with Alternative 2, and in the PM increase by approximately eight percent with Alternative 1 and seven percent with Alternative 2.
- The total network delay is projected to decrease in the AM peak period by approximately 64 percent with Alternative 1 and 47 percent with Alternative 2, and in the PM decrease by approximately six percent with Alternative 1 and 5 percent with Alternative 2.

2.5.3.5. Construction Impacts

As stated in Section 1.3.1.1, project construction would be staged to maintain through traffic on I-80 and San Pablo Dam Road, although detours and limited short-term, temporary closures could be necessary on freeway ramps and other roadways in the project limits. During the final design phase, a Transportation Management Plan (TMP) will be prepared as part of the project to minimize delay and inconvenience to the traveling public, in accordance with Department requirements and guidelines. The TMP will address traffic impacts from staged construction, detours, and specific traffic handling concerns such as emergency access during project construction. The TMP would include briefing local public officials and developing a public information program to notify the public of project progress and upcoming closures and detours. The public information program would include outreach to ride sharing agencies, transit operators, and neighborhood and special interest groups. Impacts to pedestrians and bicyclists, as well as access to local developments, would all be carefully considered in the staging plans.

2.5.3.6. Pedestrian and Bicycle Facilities

Access to and from the project's transportation facilities including San Pablo Dam Road, McBryde Avenue, El Portal Drive, and other local streets in the project limits would be designed with consideration of low-mobility groups and in conformance

with ADA. Design features would include ramped curbs at intersections and accessible locations for public transit stops.

The project would upgrade existing sidewalks on and around San Pablo Dam Road at the interchange area to meet ADA standards and California Code of Regulations Title 24 requirements. Both alternatives will include ADA-accessible sidewalks and crosswalks on each side of San Pablo Dam Road.

The project also proposes to construct bicycle lanes on the rebuilt San Pablo Dam Road Overcrossing under either build alternative. If applicable, additional nonmotorized and pedestrian features may be considered during the final design phase.

2.5.4. Avoidance, Minimization, and/or Mitigation Measures

Both of the build alternatives improve in traffic operations within the project limits. In general, levels of service would be the same or improve, and delays would decrease within the project limits. The slight increase in delays at the Amador Street/Alpine Road intersection with both build alternatives is not considered a substantial impact from the project, and may warrant consideration in the future for additional traffic controls regardless of whether the proposed I-80/San Pablo Dam Road Interchange improvements are made. At the I-80 eastbound off-ramp/Amador Street intersection, Alternative 2 would improve the existing LOS from D (AM) and F (PM) to LOS C in the AM and PM.

Table 2.5-14 Comparison of Traffic Measures of Effectiveness

Measure of Effectiveness	Units	Peak Hour	Year 2035 Conditions			Difference in Measure of Effectiveness		Difference in Percent	
			No Build	Alternative 1	Alternative 2	Alternative 1	Alternative 2	Alternative 1	Alternative 2
Total Number of Vehicles	Vehicles	AM	55,019	65,838	64,421	10,819	9,402	20%	17%
		PM	70,004	73,044	73,063	3,000	3,019	4%	4%
Total Travel Time	Vehicle Hours	AM	4,260	3,465	3,761	-795	-499	-19%	-12%
		PM	6,084	6,144	6,180	59	96	1%	2%
Total Path Distance	Vehicle Miles	AM	124,870	159,663	155,093	34,793	30,223	28%	24%
		PM	167,732	182,478	182,760	14,745	15,028	9%	9%
Average Speed	Miles per hour	AM	30	46	41	16	11	54%	38%
		PM	28	30	30	2	2	8%	7%
Total Delay Time	Vehicle Hours	AM	2,165	784	1,156	-1,382	-1,009	-64%	-47%
		PM	3,272	3,081	3,114	-190	-158	-6%	-5%

Source: URS 2008a

Note: The Difference in Measure of Effectiveness is calculated with respect to future No Build conditions.

2.6. Visual/Aesthetics

This section describes the visual setting of the project study area presented in the *Visual Resources Impact Report* (Haygood and Associates 2009).

2.6.1. Regulatory Setting

NEPA establishes that the Federal government use all practicable means to ensure all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings (42 USC 4331[b][2]). To further emphasize this point, FHWA in its implementation of NEPA (23 USC 109[h]) directs that final decisions regarding projects are to be made in the best overall public interest taking into account adverse environmental impacts, including among others, the destruction or disruption of aesthetic values.

Likewise, CEQA establishes that it is the policy of the State to take all action necessary to provide the people of the State “with...enjoyment of aesthetic, natural, scenic and historic environmental qualities” (California Public Resources Code [PRC] Section 21001[b]).

2.6.2. Affected Environment

The project limits on I-80 are located in foothill terrain at the base of the East Bay hills between El Portal Drive and McBryde Avenue in the cities of San Pablo and Richmond and unincorporated Contra Costa County. The natural gradient of the freeway slopes downward from the east to the west toward San Francisco Bay. The terrain adjacent to the freeway varies but generally rises steeply to the east of I-80 and is flat to moderately sloping downgradient toward San Pablo Bay to the west.

The visual setting of the project area is dominated by urban features. Views along the freeway corridor are generally of overcrossings (located at San Pablo Dam Road, McBryde Avenue, and Riverside Avenue) and soundwalls, retaining walls, landscaping, signs, and housing and commercial land uses. Non-urban features are limited to cut slopes and vegetated areas between I-80 and San Pablo Dam Road at the eastern extent of the project limits. Views of the East Bay hills to the north and east include some remnants of natural topographical features and grasslands. Vegetation in and adjacent to the project limits is mature and consists of introduced species of trees, shrubs, and groundcovers. I-80 is not a designated California scenic highway within the project limits.

The visual resources evaluation used criteria and methods provided in the guidance from *Visual Impact Assessment for Highway Projects* (FHWA 1981). Eighteen locations were identified, described, and photographed to represent the wide range of existing visual conditions within the project limits. The visual character and quality of the existing landscape was evaluated from the representative vantage points based on urban and natural characteristics, and quality (defined in terms of vividness, intactness, and unity).

Figures 2.6-1 through 2.6-5 include photographs of the existing setting from various vantage points in the project area. The photographs represent the range of visible features that exist in the project limits. Figure 2.6-1 shows the photo locations and view directions.

2.6.3. Environmental Consequences

2.6.3.1. Changes to the Visual Setting in the Study Area

Descriptions of each view perspective (Views A through R) and the changes to the visual setting that would result from the project are provided in Table 2.6-1. Figures 2.6-6 through 2.6-11 present before-and-after visual simulations for five locations where the project has the greatest potential to affect views.

Table 2.6-1 Summary of Visual Changes at Representative View Locations

View ID (Figure #)	Description of Existing View	Changes with the Project (With Both Build Alternatives Unless Noted)
A (2.6-2)	Regional view from Hillcrest Road looking toward I-80 and the El Portal Drive interchange ramps. This photo illustrates a distant view of the eight-lane freeway from the hills to the east of the project.	The project would close the existing and build a new westbound on-ramp at the El Portal Drive overpass. Some trees near the freeway would be removed to accommodate the new on-ramp. Overall, the existing urban and intermixed vegetated areas and street landscaping would remain the same.
B (2.6-2)	East from I-80, at the exit for the eastbound El Portal Drive off-ramp. The eucalyptus trees to the left on this photo are adjacent to I-80 at El Portal Drive.	The eucalyptus trees to the left of I-80 in this view would be removed to accommodate the new westbound on-ramp. New trees will be planted.
C (2.6-2)	East from the San Pablo Dam Road westbound off-ramp. Mature trees, shrubs, and grasses are visible on each side of the freeway and ramps.	A retaining wall would be built on the freeway side of the ramp varying in height from four to 12 feet and approximately 550 feet long. Some trees visible to the left in this photo would be removed to accommodate a widened westbound off-ramp. Changes to the ramp are limited to minor shoulder widening and restriping.

Table 2.6-1 Summary of Visual Changes at Representative View Locations

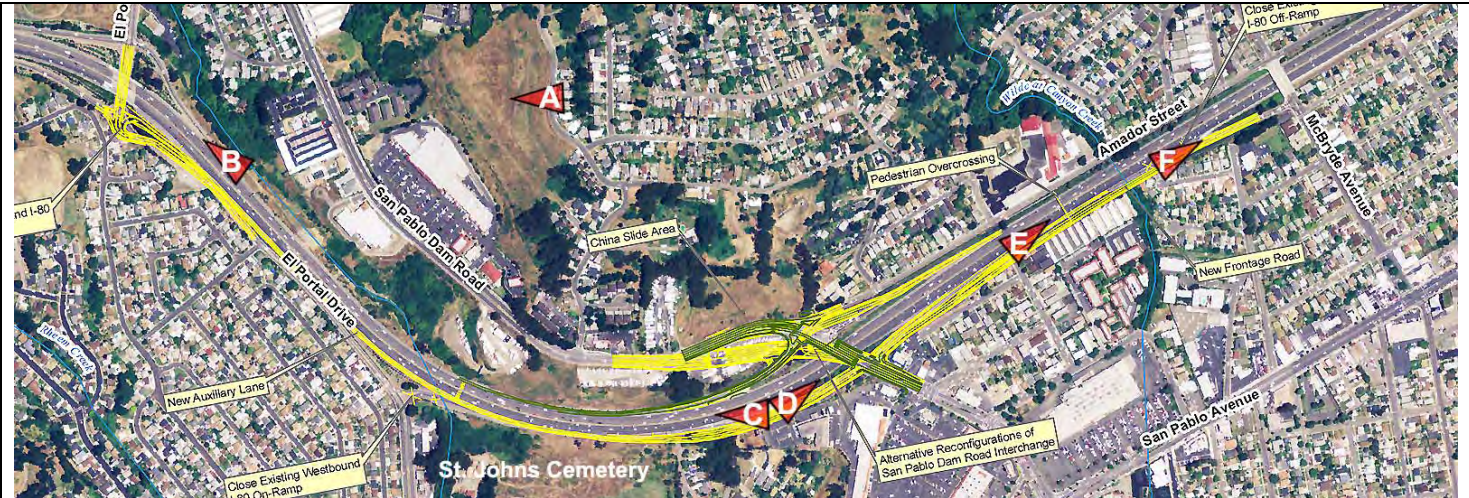
View ID (Figure #)	Description of Existing View	Changes with the Project (With Both Build Alternatives Unless Noted)
D (2.6-2)	West from the same vantage point as View C, toward the San Pablo Dam Road westbound off-ramp and existing San Pablo Dam Road Overcrossing.	The build alternatives will replace the San Pablo Dam Road Overcrossing with a wider structure, about two feet higher than the existing bridge. Alternative 1 would maintain the bridge in approximately the same location. Alternative 2 would shift and realign the east side of the overcrossing (left side of the photo) toward the viewer.
E (2.6-3)	Westbound on I-80 at the existing pedestrian overcrossing near Riverside Elementary School.	The project would relocate this pedestrian overcrossing approximately 300 feet to the east at Riverside Avenue. The overcrossing would be longer to span the proposed frontage road and Amador Street. The vegetation visible on the right side of this photo would be removed. An existing soundwall would be reconstructed and extended on the right (west) side of I-80.
F (2.6-3)	Westbound on I-80 showing the McBryde Avenue off-ramp. Retaining walls and soundwalls are adjacent to the freeway and ramps.	The project would close the ramp and provide a frontage road on the south side of I-80 connecting San Pablo Dam Road with McBryde Avenue. The frontage road would be at a higher elevation than I-80 at this location. Existing soundwalls would be relocated/reconstructed to accommodate the frontage road. With the project, the soundwalls would be at the new edge of the road and ramps, and the overall visual impression of experience of the soundwalls and retaining walls would be similar to the existing setting.
G (2.6-3)	View along Amador Street near its intersection with San Pablo Dam Road, showing portion of residential neighborhood that lines east side of the street.	<p>With Alternative 1, the eastbound I-80 off-ramp would remain in its existing location, and minor realignment of Amador Street would take place. The existing vegetation will mostly remain. The profile (grade) of Amador Street would be increased by approximately 2.5 feet in this location to match the elevation of the reconstructed San Pablo Dam Road Overcrossing.</p> <p>Alternative 2 would relocate and curve San Pablo Dam Road to the north, and this portion of Amador Street would be shifted to the east. The project would add an aesthetically treated retaining wall approximately four to eight feet high. Most existing vegetation near the interchange would be removed.</p>

Table 2.6-1 Summary of Visual Changes at Representative View Locations

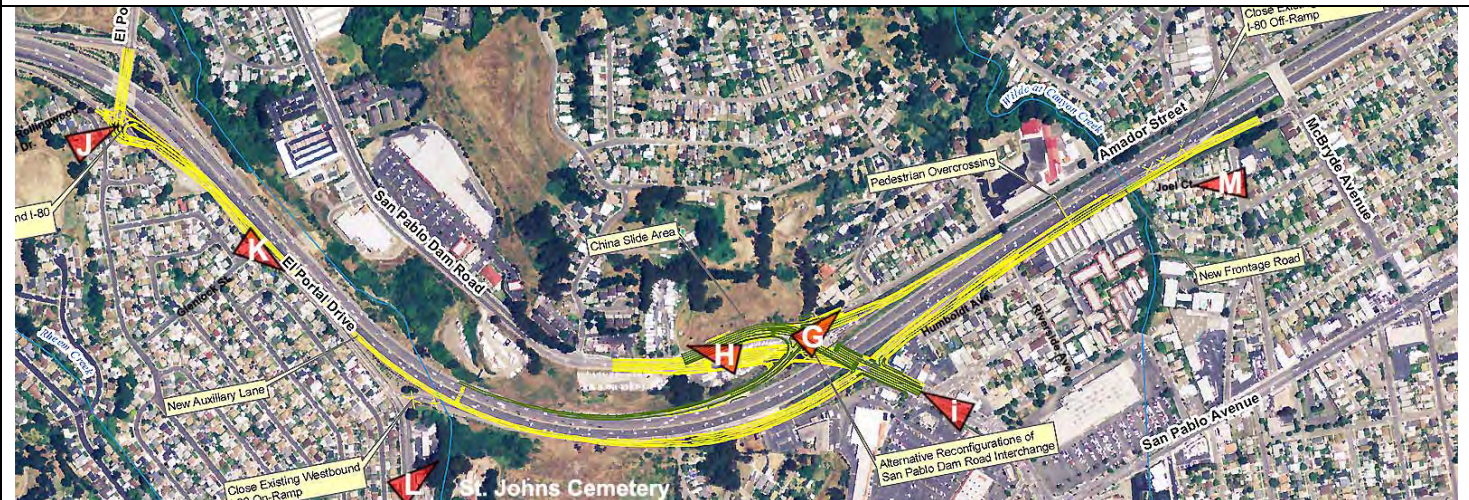
View ID (Figure #)	Description of Existing View	Changes with the Project (With Both Build Alternatives Unless Noted)
H (2.6-3)	View across San Pablo Dam Road looking northeast toward a mobile home community above the interchange, near the China Slide area. Residents in the community have views of San Pablo Dam Road and the interchange.	<p>With Alternative 1, San Pablo Dam Road would be widened at this location but retain approximately the same alignment. Because of the presence of the China Slide on the slope adjacent to this location (to the right, or south, in this photo), further encroachment of the road into the hillside would be minimized or avoided.</p> <p>With Alternative 2, views from this location would be of a realigned San Pablo Dam Road and overcrossing, slightly west of the existing slope and roadway alignment.</p>
I (2.6-4)	Northeast along the commercial area adjacent to San Pablo Dam Road where it crosses over I-80.	Both alternatives would widen the San Pablo Dam Road Overcrossing. The widening would be to the north or left side of the road section in this view, and some of the existing trees and shrubs would have to be removed and replaced.
J (2.6-4)	Southwest along Rollingwood Drive toward residential homes that border El Portal Drive and the existing undercrossing at I-80. The eucalyptus trees in the background of the photo are adjacent to westbound I-80.	The construction of the relocated westbound El Portal on-ramp would require acquisition and removal of two homes on Rollingwood Drive (far left side of photo). The eucalyptus trees visible in the background of this photo are adjacent to westbound I-80 and would be removed to accommodate the new westbound on-ramp.
K (2.6-4)	Southwest along El Portal Drive and the existing soundwall between westbound I-80 and El Portal Drive.	Portions of this soundwall would be relocated to accommodate the proposed westbound I-80 auxiliary lane. Following completion, the relocated wall would appear similar to the existing setting shown in the photo. Independent of this project, the City of San Pablo is constructing an 8-foot masonry wall along the edge of El Portal Road, on the right side of this photo.
L (2.6-4)	From Church Lane looking north across St. Joseph Cemetery in the direction of I-80. The freeway is mostly screened within the distant hillside.	The proposed project would generally not affect views from this perspective (described in View J). Most of the distant vegetation shown in this view will remain.
M (2.6-5)	North along Joel Court. The homes on the right side of this photo have rear yards that border a soundwall along the I-80/McBryde Avenue westbound off-ramp.	This view would not change except for the relocation of the pedestrian overcrossing by approximately 300 feet to the east. The residences would remain, and a portion of the existing soundwall in the rear yards of these homes will be reconstructed and raised two to four feet in its current location.

Table 2.6-1 Summary of Visual Changes at Representative View Locations

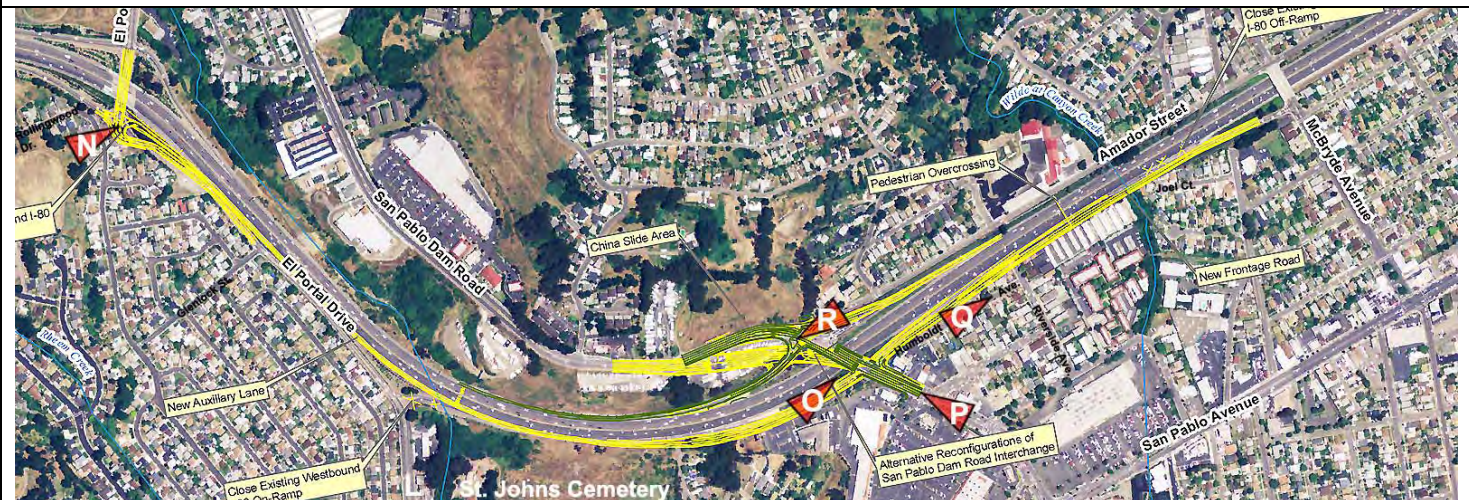
View ID (Figure #)	Description of Existing View	Changes with the Project (With Both Build Alternatives Unless Noted)
N (2.6-6)	View from Rollingwood Drive toward I-80 and El Portal Drive.	The project would remove two residences have addresses on Rollingwood Drive with rear yards that border El Portal Drive: this home and the home adjacent to it to the right (southwest). I-80 crosses over El Portal Drive at this location, which is visible from homes on Rollingwood Drive. In the perspective of this view, the project would remove the two homes, eucalyptus trees in the background, and the soundwall on westbound I-80. The westbound on-ramp would have a retaining wall, as shown in the visual simulation in Figure 2.6-6. The retaining wall would vary from two to 15 feet high near the El Portal Drive intersection to its merge with westbound I-80.
O (2.6-7)	View west from the westbound I-80/San Pablo Dam Road off-ramp near the existing I-80/San Pablo Dam Road Interchange.	Motorists exiting on the westbound off-ramp to San Pablo Dam Road will view a widened ramp and a reconstructed I-80 overcrossing. This perspective and view would otherwise remain generally the same, as shown in the visual simulation in Figure 2.6-7.
P (2.6-8)	North from San Pablo Dam Road toward the overcrossing of I-80.	The changes at this location are generally the same as described for View I, as shown in the visual simulation in Figure 2.6-8.
Q (2.6-9)	West toward the homes along Humboldt Street and the existing soundwall bordering westbound I-80.	The homes along the east side of Humboldt Street (along the existing soundwall on westbound I-80) and at the eastern end of Riverside Avenue would be acquired and the structures removed. The existing soundwall would be removed, and a new soundwall would be constructed on the east side of Humboldt Street. Views from homes on the west side of Humboldt Street would be of the soundwall instead of residential structures, as shown in the visual simulation in Figure 2.6-9.
R (2.6-10, 2.6-11)	East from Amador Street toward San Pablo Dam Road and the I-80 eastbound on-ramp.	<p>With Alternative 1, the view looking north at the intersection of San Pablo Dam Road and Amador Street would be generally the same, except that trees and shrubs along I-80 would be removed. The intersection would be raised slightly due to the higher profile of the San Pablo Dam Road Overcrossing but would not substantially change the view at this location, as shown in the visual simulation in Figure 2.6-10.</p> <p>With Alternative 2, the San Pablo Dam Road Overcrossing would shift to the north and Amador Street would be realigned. The overcrossing would be higher than the existing structure. Most trees and vegetation in the vicinity of the San Pablo Dam Road/Amador Street intersection would be removed, as shown in the visual simulation in Figure 2.6-11.</p>



Existing view perspectives A through F (shown in Figures 2.6-2 and 2.6-3)



Existing view perspectives G through M (shown in Figures 2.6-3 through 2.6-4)



Before-and-after view simulation perspectives N through R (shown in Figures 2.6-5 through 2.6-11)

<p>I-80/San Pablo Dam Road Interchange Project</p>	<p>Key Map: Existing View and Visual Simulation Perspectives</p>	<p>Figure 2.6-1</p>
--	--	---------------------



A. From Hillcrest Road toward I-80 and El Portal Drive interchange ramps



B. East from I-80 at the eastbound El Portal Drive off-ramp



C. East from the San Pablo Dam Road westbound off-ramp



D. San Pablo Dam Road westbound off-ramp and existing overcrossing

Figure 2.6-2 Existing Views in the Project Area (A–D)



E. Westbound I-80 at the existing pedestrian overcrossing



F. Westbound I-80 at the McBryde Avenue off-ramp



G. Amador Street near its intersection with San Pablo Dam Road



H. Across San Pablo Dam Road looking northeast toward a mobile home community above the interchange, near the China Slide area

Figure 2.6-3 Existing Views in the Project Area (E–H)

I-80/San Pablo Dam Road Interchange Project IS/EA



I. Northeast along San Pablo Dam Road where it crosses I-80



J. Southwest along Rollingwood Drive toward homes that border El Portal Drive and the existing undercrossing at I-80



K. Southwest along El Portal Drive and the soundwall along westbound I-80



L. From Church Lane looking north across St. Joseph Cemetery toward I-80

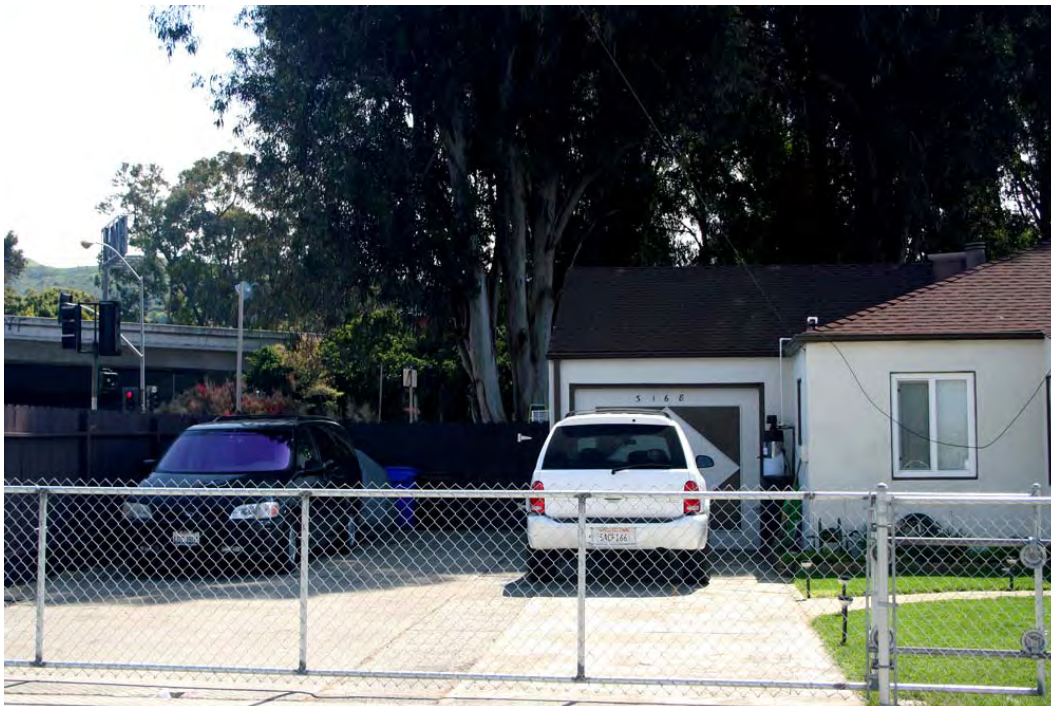
Figure 2.6-4 Existing Views in the Project Area (I-L)

I-80/San Pablo Dam Road Interchange Project IS/EA



M. North along Joel Court.

Figure 2.6-5 Existing Views in the Project Area (M)



Existing view from Rollingwood Drive toward I-80 and El Portal Drive



Simulated view with proposed project

I-80/San Pablo Dam Road
Interchange Project

Existing and Simulated View from Rollingwood
Drive (View N)

Figure
2.6-6



Existing view from I-80 westbound off-ramp to San Pablo Dam Road



Simulated view with proposed project

**I-80/San Pablo Dam Road
Interchange Project**

**Existing and Simulated View From I-80
Westbound Off-Ramp at San Pablo Dam Road
(View O)**

**Figure
2.6-7**



Existing view north of San Pablo Dam Road, toward I-80 overcrossing



Simulated view with proposed project

I-80/San Pablo Dam Road
Interchange Project

Existing and Simulated View of San Pablo Dam
Road over I-80 (View P)

Figure
2.6-8



Existing view west from Humboldt Avenue of I-80 soundwall and Humboldt Avenue



Simulated view with proposed project

**I-80/San Pablo Dam Road
Interchange Project**

**Existing and Simulated View along Humboldt
Avenue (View Q)**

**Figure
2.6-9**



Existing view east from Amador Street of eastbound I-80 on-ramp at San Pablo Dam Road



Simulated view with proposed project

I-80/San Pablo Dam Road
Interchange Project

**Existing and Simulated View (Alternative 1) from
Amador St. at I-80/San Pablo Dam Road
Intersection (View R-1)**

**Figure
2.6-10**



Existing view east from Amador Street of eastbound off-ramp from I-80 at San Pablo Dam Road



Simulated view with proposed project

I-80/San Pablo Dam Road
Interchange Project

**Existing and Simulated View (Alternative 2) from
Amador St. at I-80/San Pablo Dam Road
Intersection (View R-2)**

**Figure
2.6-11**

Overall, the proposed project would not result in substantial adverse visual impacts. Views in the project area already include major visual elements of I-80, the interchanges, the pedestrian overcrossing, soundwalls, freeway landscaping, and freeway signs and lighting. The project would modify this corridor by adding an auxiliary lane, relocating and modifying interchange ramps, reconstructing the San Pablo Dam Road Overcrossing, and relocating and extending existing soundwalls. These changes would not introduce new structures or features in the project limits that are not already part of the existing landscape. The project would require the acquisition of homes and commercial properties and the removal of existing vegetation including mature trees in specific areas, which would change the local visual setting.

2.6.3.2. Areas That Would Experience Greatest Visual Change

The major areas of change to the visual setting are described below.

East End of El Portal Drive / Rollingwood Neighborhood

Along westbound I-80, the addition of the auxiliary lane would require removal and replacement of three sections of an existing 16-foot-high soundwall to accommodate the additional freeway pavement area. The replaced sections would appear similar to the existing soundwall. The easternmost 300 feet of the existing soundwall, near the El Portal Drive underpass of I-80, would be removed and not replaced to accommodate the relocation of the westbound on-ramp at this location.

The easternmost portion of El Portal Drive in the project limits must be realigned to accommodate the proposed westbound on-ramp. This realignment requires acquisition and removal of two homes on Rollingwood Drive and removal of mature eucalyptus trees next to I-80. Near I-80 on Rollingwood Drive and El Portal Drive, residences and trees would be removed, exposing additional views of the freeway and the existing El Portal Drive undercrossing at I-80. This change is simulated in View N (Figure 2.6-6).

Independent of the proposed project, the City of San Pablo would construct a previously planned 8-foot-high masonry wall along El Portal Drive, to just east of Glenlock Street (see layout sheet L-5 in Appendix A). The proposed I-80/San Pablo Dam Road Interchange project would include extension of the city's 8-foot-high masonry wall along the portion of the realigned El Portal Drive to shield the rear yards⁷ of the remaining homes within the project limits (see "Masonry Wall SW4" on layout

⁷ These homes front Rollingwood Drive and Judith Court and have rear yards along El Portal Drive.

sheet L-6 in Appendix A). The soundwall would replace existing wooden fences of approximately the same height. The masonry wall along El Portal Drive would not block any existing views and would provide a visual barrier to this busy arterial.

San Pablo Dam Road Interchange

The overcrossing would be reconstructed, would appear slightly higher and larger, and would modify the connection and alignment of Amador Street at the interchange. Visual changes resulting from the two alternatives at this location include the following.

- **Alternative 1.** With this alternative, the San Pablo Dam Road Overcrossing would be reconstructed in approximately the same location as the existing overcrossing but would be wider and higher. The westbound off-ramp would be approximately 16 feet wider. The increased overcrossing height would require installation of new retaining walls at the edge of the right-of-way on the west side of the I-80 and San Pablo Dam Road, adjacent to the restaurants on the southwest and northwest quadrants of the interchange. These retaining walls would replace existing walls. Some trees and shrubs between I-80 and the eastbound on-ramp would be removed, as illustrated in Figure 2.6-10. The recreational vehicle storage and sales business next to San Pablo Dam Road and the eastbound on-ramp, which is located on right-of-way leased from the Department, would be partially or entirely removed.
- **Alternative 2.** Alternative 2 would reconstruct the San Pablo Dam Road Overcrossing to the northeast of, and at an angle to, the existing alignment. The overcrossing would also be higher than the existing structure. View O (Figure 2.6-7) illustrates the changes at the westbound off-ramp, which would be widened, and shows the slight elevation change to the overcrossing. View P (Figure 2.6-8) shows the proposed changes from the viewpoint of an eastbound motorist on San Pablo Dam Road approaching the overcrossing. View R-2 (Figure 2.6-11) shows the changes from the viewpoint of a motorist traveling north on Amador Street toward the I-80/San Pablo Dam Road Interchange. This simulation illustrates the realignment of Amador Street to conform to the Amador Street/San Pablo Dam Road intersection, which would be relocated to the north. All existing trees between the westbound on-ramp and I-80 would be removed.

Humboldt Street to McBryde Avenue

The project would require the acquisition and removal of homes on the east side of Humboldt Street. The existing soundwall would be reconstructed near the east side of Humboldt Street, and residents along this street would see the soundwall instead of the existing homes. More structural uniformity, characteristic of concrete and masonry structures, would be visible in views toward I-80. The existing self-storage business between Riverside Avenue and Wildcat Creek would be retained to the extent possible by minimizing right-of-way acquisition. If the entire property must be acquired, the soundwall would be extended along westbound I-80, and residents of the condominium complex to the west would view a soundwall in the distance instead of the self-storage buildings.

2.6.3.3. Construction Impacts

During construction, which would occur over a 2-year period, viewers would generally see materials, equipment, workers, and the operation of construction equipment. Impacts of construction are unavoidable but would be temporary. Motorists, pedestrians, and bicyclists would be exposed briefly to views of construction activities while passing through construction zones. Some residents near the soundwalls that would be reconstructed as part of the project would have views of construction activities after the existing walls are removed and before the new walls are constructed.

Lighting for nighttime construction activities could create a temporary source of light or glare in and directly adjacent to the project limits. Temporary lighting installations include site lighting for construction staging areas and portable generator-mounted lighting for paving and other construction activities. The construction contractor would be required to direct lighting away from residential areas.

The visual effects of project construction would be temporary and transient in nature.

2.6.3.4. Context Sensitive Solutions

The Department's planning, design, operation, and maintenance of transportation systems include consideration of "context sensitive solutions" (CSS). The CSS process is intended to integrate and balance community, aesthetic, historic, and environmental values with transportation safety, maintenance, and performance goals. During public meetings held for the proposed project (see Section 3.2), no specific concerns were expressed about the aesthetics of the existing walls or landscaping along this corridor. The proposed walls, any conceptual wall treatments, and

landscaping within the State right-of-way will be discussed at future public meetings to solicit input on those features.

One modification was made to the project design as a direct result of community input: the design of the pedestrian overcrossing at Riverside Elementary School. The existing structure crosses the freeway but ends on the west side of Amador Street, requiring students and other pedestrians to cross Amador Street. The school administration requested that the pedestrian overcrossing extend past Amador Street into the Riverside Elementary School grounds to improve safety. The overcrossing design was modified accordingly. Input will also be solicited during the public meeting for this environmental document regarding the aesthetic treatment of the pedestrian overcrossing and the proposed replacement interchange structure at San Pablo Dam Road.

2.6.4. Avoidance, Minimization, and/or Mitigation Measures

The measures listed in Table 2.6-2 should be considered to minimize visual impacts from the proposed project.

Table 2.6-2 Visual Mitigation Measures

Project Feature	Mitigation
Soundwalls and Retaining Walls	Architectural treatment of soundwalls and retaining walls should match other walls adjacent to the project. Wall surfaces should have an aesthetic treatment to reduce glare and visual monotony.
Replacement Planting	Replacement planting will help blend the project into the community, provide screening of highway features, and provide permanent slope stabilization. Vine planting to soften walls and control graffiti should be accommodated where possible. An emphasis on tree planting should be accommodated wherever possible. Tall evergreen trees should be considered for replacement planting in locations where existing large-scale trees are removed for the project.
Locations of Special Interest	Rollingwood Drive, Humboldt Avenue, and Amador Street are locations where the visual impacts from the project are predicted to have the highest viewer sensitivity. Special attention to accommodating the above recommendations should be paid to these areas, with emphasis on the following priorities: <ul style="list-style-type: none"> Rollingwood Drive, Amador Street: Add trees or shrubs wherever possible to screen views of roadway and restore views of existing trees. Humboldt Avenue: As replacement planting will not be possible along the side of the new soundwall facing the community, aesthetic wall treatments should be emphasized.

2.7. Cultural Resources

This section summarizes the *Archaeological Survey Report* (URS 2008c), *Historic Property Survey Report* (URS 2008d), and *Historic Resources Evaluation Report* (JRP 2008) prepared for the proposed project.

2.7.1. Regulatory Setting

“Cultural resources” as used in this document refers to all historical and archaeological resources, regardless of significance. Laws and regulations dealing with cultural resources are described below.

The National Historic Preservation Act of 1966, as amended, sets forth national policy and procedures regarding historic properties, defined as districts, sites, buildings, structures, and objects included in or eligible for the National Register of Historic Places (NRHP). Section 106 of National Historic Preservation Act requires Federal agencies to take into account the effects of their undertakings on such properties and to allow the Advisory Council on Historic Preservation the opportunity to comment on those undertakings, following regulations issued by the Advisory Council on Historic Preservation (36 CFR 800). On January 1, 2004, a Section 106 Programmatic Agreement among the Advisory Council, FHWA, State Historic Preservation Officer (SHPO), and the Department went into effect for Department projects, both State and local, with FHWA involvement. The Programmatic Agreement takes the place of the Advisory Council’s regulations (36 CFR 800), streamlining the Section 106 process and delegating certain responsibilities to the Department.

Historical resources are considered under CEQA and under PRC Section 5024.1, which established the California Register of Historical Resources (CRHR). PRC Section 5024 requires State agencies to identify and protect State-owned resources that meet NRHP listing criteria. It further specifically requires the Department to inventory State-owned structures in its rights-of-way. Sections 5024(f) and 5024.5 require State agencies to provide notice to and consult with the SHPO before altering, transferring, relocating, or demolishing State-owned historical resources that are listed on or are eligible for inclusion in the NRHP or are registered or eligible for registration as California Historical Landmarks.

2.7.2. Affected Environment

The study areas for cultural resources investigations are referred to as Areas of Potential Effect (APEs). The archaeological resources APE includes the existing and proposed right-of-way for the project, including both of the build alternatives, and additional area sufficient for project construction. This includes parcels that must be acquired for the project and area sufficient for temporary construction easements, staging, and access. The architectural APE includes the area of the archeological APE, as well as parcels with buildings or structures adjacent to the existing and proposed right-of-way that could be indirectly affected by project construction or operation. In addition, the project would reconstruct some non-State-owned roadway and driveway connections. Therefore, the APE areas also include existing and proposed changes to City of San Pablo and Contra Costa County right-of-way.

2.7.2.1. Records/Archival Review and Archaeological Field Survey Results

An archival search was completed at the California Historic Resources Inventory System, Northwest Information Center (CHRIS/NWIC) at California State University, Sonoma, for the project right-of-way and a 0.25-mile radius, as well as a review of reports for all known cultural resource studies conducted within a 1-mile radius.

The records search, review of historical maps and General Land Office plats, and field survey did not identify any archaeological resources within the APE. Moreover, previous field surveys conducted within the APE also did not result in the recordation of any archaeological resources.

All accessible portions of the archaeological APE were subject to a pedestrian survey. No new resources or sites were identified or recorded.

2.7.2.2. Native American Consultation

A records search of the Sacred Lands File was conducted by the Native American Heritage Commission. No sacred lands were identified in the project's APE. The Native American Heritage Commission provided the names and contact information for seven individuals or organizations that may have knowledge of cultural resources in the project area. Letters were sent to each seeking comments about any concerns or issues pertinent to the project. Follow-up emails and telephone messages were also sent. No comments were received.

2.7.2.3. Potential for Presence of Subsurface Resources

Due to the extensive modification of the ground surface at the project site and the proposed excavation within artificial fill soils, the probability of encountering subsurface archaeological deposits is considered very low.

2.7.2.4. Historic Resources Records and Field Inventory Results

The pedestrian survey of the archaeological APE did not identify any buildings and structures not already identified in the records search that were potentially constructed before 1961 (i.e., over 45 years) or that exhibited characteristics that potentially meet the criteria for listing in the National Register of Historic Places (NRHP). The records search and literature review identified 17 previously unrecorded historic-era properties. Caltrans Professionally Qualified Staff found, and the SHPO concurred, that the properties are not eligible for listing to the NRHP. Likewise, none of these properties appear to be eligible for the California Register of Historic Resources (CRHR), nor do they appear to be historical resources for the purposes of CEQA.

2.7.3. Environmental Consequences

No sensitive cultural resources exist within either the archaeological or historic structures APE areas. Consequently, the cultural resource finding for this project is No Historic Properties Affected. The project would also not affect, or use, a Section 4(f) historic resource.

The cultural resources studies and determinations that no properties within the APE areas are eligible for the NRHP were submitted to the State Historic Preservation Officer, who concurred with the findings. This consultation is included in Appendix I.

2.7.4. Avoidance, Minimization, and/or Mitigation Measures

No further archaeological work is necessary within the APE. Additional surveys will be required if the project changes to include areas not previously surveyed. The project does not warrant the completion of a formal discovery plan based on the absence of recorded, reported, or identified archaeological sites in and adjacent to the APE and the perceived low potential for exposing unknown archaeological resources during construction.

If cultural materials are discovered during construction, all earth-moving activity within and around the immediate discovery area will be diverted until a qualified archaeologist can assess the nature and significance of the find.

If human remains are discovered, California Health and Safety Code Section 7050.5 states that further disturbances and activities will cease in any area or nearby area suspected to overlie remains, and the County Coroner contacted. Pursuant to California Public Resources Code Section 5079.98, if the remains are thought to be Native American, the coroner will notify the Native American Heritage Commission who will then notify the Most Likely Descendent. At this time, the person who discovered the remains will contact the District Environmental Branch so that they may work with the Most Likely Descendent on the respectful treatment and disposition of the remains. Further provisions of California Public Resources Code Section 5097.98 are to be followed as applicable.

Physical Environment

2.8. Hydrology and Floodplains

The following summarizes the findings of the *Location Hydraulic Study Report* (WRECO 2008) prepared for the proposed project.

2.8.1. Regulatory Setting

Executive Order 11988 (Floodplain Management) directs all Federal agencies to refrain from conducting, supporting, or allowing actions in floodplains unless it is the only practicable alternative. FHWA requirements for compliance are outlined in 23 CFR 650 Subpart A.

In order to comply, the following must be analyzed:

- The practicability of alternatives to any longitudinal encroachments;
- Risks of the action;
- Impacts on natural and beneficial floodplain values;
- Support of incompatible floodplain development; and
- Measures to minimize floodplain impacts and to preserve/restore any beneficial floodplain values affected by the project.

The base floodplain is defined as “the area subject to flooding by the flood or tide having a one percent chance of being exceeded in any given year.” An encroachment is defined as “an action within the limits of the base floodplain.”

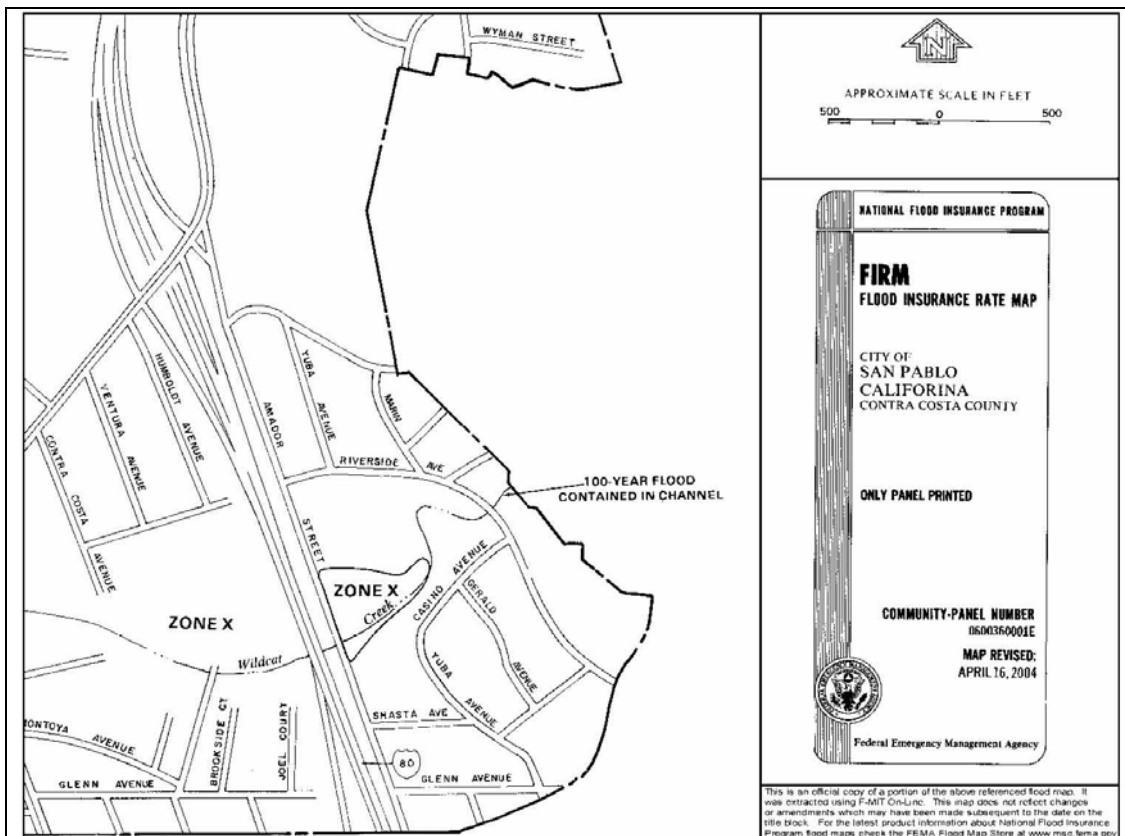
2.8.2. Affected Environment

The project area is in the 22,621-acre Berkeley Hydrologic Area Watershed. The major drainages in the watershed are San Pablo Creek, Wildcat Creek, San Leandro Creek, and San Lorenzo Creek. Surface water resources in the project area include an unnamed drainage at approximately Station 40+70 and San Pablo and Wildcat creeks, which cross under I-80 in concrete culverts and flow west to San Pablo Bay. According to the U.S. Geological Survey, the unnamed drainage is not a perennial stream (WRECO 2008).

The project crosses Wildcat Creek between San Pablo Dam Road and McBryde Avenue and San Pablo Creek at the existing El Portal Drive on-ramp to westbound I-80. Both

creeks are in culverts where they cross I-80. San Pablo and Wildcat creeks within and near the project area have been confined by urban infill and altered with concrete, riprap, and bank stabilization devices, and the natural channels have become incised. However, the creeks are valued and protected by community members and organizations such as the San Pablo Watershed Neighbors Education and Restoration Society.

The project area is shown within two Federal Emergency Management Agency (FEMA) National Flood Insurance Program maps (Community Panel Numbers 0600360001E and 0600250230C; Figures 2.8-1 and 2.8-2). At Wildcat Creek upstream of Amador Street, the FEMA map indicates that the area is either a 500-year flood zone or a 100-year flood zone with average depths of less than one foot or with drainage areas of less than one square mile. At the San Pablo Creek crossing at I-80, the FEMA map indicates that 100-year base floodplains exist at an area immediately downstream of the cross culvert and also upstream of the cross culvert from the San Pablo city limit to El Portal Drive. The maps indicate the 100-year flood is contained within the channels for both Wildcat and San Pablo creeks; however, base flood elevations and flood hazard factors are not determined.



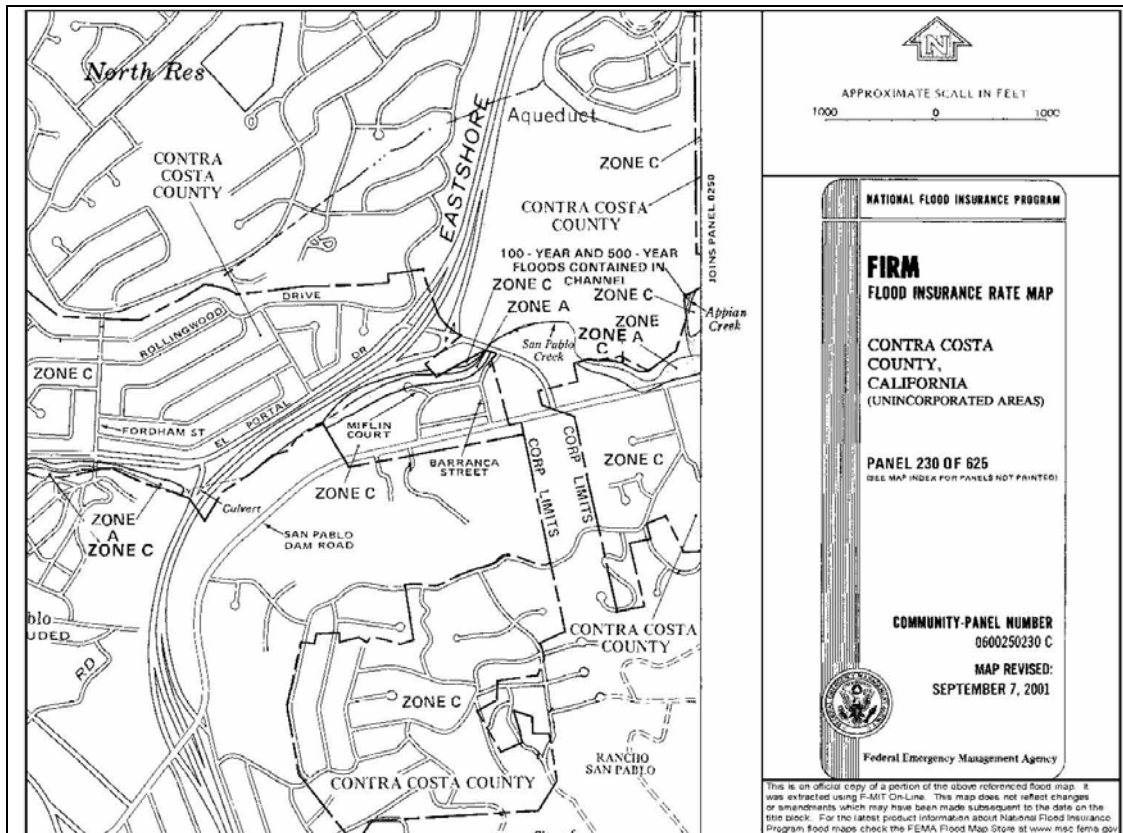


Figure 2.8-2 FEMA Flood Insurance Rate Map: San Pablo 100-Year Floodplain

2.8.3. Environmental Consequences

2.8.3.1. Description of Work and Project Changes at Drainages/Channels

Wildcat and San Pablo creeks are in culverts where they cross existing freeway facilities. No structures would be placed within the creeks, and no work is proposed within the FEMA-designated floodplains for either project alternative. At San Pablo Creek, the pavement for the existing El Portal Drive on-ramp would be removed. No construction would take place in the creek or on its banks. At Wildcat Creek, a bridge structure would be placed at the top of the creek bank for the one-way frontage road to McBryde Avenue and the auxiliary lane to the westbound I-80 on-ramp from San Pablo Dam Road. No bridge construction would take place within the creek waters, and existing wingwalls would remain unaffected. The bridge structure is anticipated to clear-span the creek (meaning that no piers or footings would be placed within the creek) but would require installation of abutments at the top or outside of the creek banks.

2.8.3.2. Natural and Beneficial Floodplain Values and Regulatory Floodway⁸

The hydraulic and floodplain evaluation determined that the proposed project would not result in any longitudinal encroachment, significant encroachment or risk, significant impact to natural and beneficial floodplain values, or support of incompatible floodplain development (see Appendix B of the Location Hydraulic Study Report [WRECO 2008]). Natural and beneficial floodplain values within the project area could include the presence of vegetation and natural habitat in San Pablo and Wildcat creeks, although limited habitat exists in the project because of existing concrete channels and wingwalls on the west side of I-80. The project would not change flood passage because the San Pablo Creek channel would be avoided and work at Wildcat Creek would be limited to above the existing wingwalls. The project would not change base flood elevations within a regulatory floodway.

2.8.3.3. Changes in Runoff Quantities

Increases in runoff from impervious surface area added by the project would be minimal (estimated at 3.76 acres) compared to the existing runoff from the off-site watershed areas. Further studies of any hydromodification from the project with regard to drainage facilities would be performed during the final project design phase when more detailed survey information becomes available. Although the project would not affect existing flood risk, it will change runoff and drainage as discussed in Section 2.9.

2.8.4. Avoidance, Minimization, and/or Mitigation Measures

The project design avoids changes to existing floodplain areas, and therefore no avoidance, minimization, and/or mitigation measures are required.

⁸ A regulatory floodway is a floodplain area designated and reserved by a Federal, State, or local authority to allow or maintain unobstructed flood flows within 1 foot of the designated flood elevations.

2.9. Water Quality and Stormwater Runoff

This section is based on the Water Quality Report (URS 2008d) prepared for the proposed project. Hydrology and floodplains are discussed in Section 2.8.

2.9.1. Regulatory Setting

2.9.1.1. Federal and State

Section 401 of the Clean Water Act (CWA) requires water quality certification from the State Water Resource Control Board (SWRCB) or a Regional Water Quality Control Board (RWQCB) when the project requires a Federal permit. Typically this means a CWA Section 404 permit to discharge dredge or fill into a water of the United States, or a permit from the Coast Guard to construct a bridge or causeway over a navigable water of the United States under the Rivers and Harbors Act.

Along with CWA Section 401, Section 402 establishes the National Pollutant Discharge Elimination System (NPDES) for the discharge of any pollutant into waters of the United States. The Federal Environmental Protection Agency has delegated administration of the NPDES program to the SWRCB and the nine RWQCBs. To ensure compliance with Section 402, the SWRCB has developed and issued the Department an NPDES Statewide Storm Water Permit to regulate stormwater and non-stormwater discharges from Department right-of-way, properties, and facilities. This same permit also allows stormwater and non-stormwater discharges into waters of the State pursuant to the Porter-Cologne Water Quality Act.

Stormwater discharges from the Department's construction activities disturbing one acre or more of soil are permitted under the Department's Statewide Storm Water NPDES permit. These discharges must also comply with the substantive provisions of the SWRCB's Statewide General Construction Permit. Non-Departmental construction projects (encroachments) are permitted and regulated by the SWRCB's Statewide General Construction Permit. All construction projects exceeding one acre or more of disturbed soil require a Storm Water Pollution Prevention Plan (SWPPP) to be prepared and implemented during construction. The SWPPP, which identifies construction activities that may cause discharges of pollutants or waste into waters of the United States or waters of the State, as well as measures to control these pollutants, is prepared by the construction contractor and is subject to Department review and approval.

Finally, the SWRCB and the RWQCBs have jurisdiction to enforce the Porter-Cologne Act to protect groundwater quality. Groundwater is not regulated by Federal law but is regulated under the State's Porter-Cologne Act. Some projects may involve placement or replacement of on-site treatment systems such as leach fields or septic systems or propose implementation of infiltration or detention treatment systems that may pose a threat to groundwater quality.

2.9.1.2. Local

The Contra Costa County General Plan (2005) and the City of San Pablo General Plan (1996) include policies that provide development guidance specific to water resources. These include erosion control measures for construction, grading, and filling, especially near watercourses, to minimize impacts from erosion, sedimentation, biochemical degradation, or thermal pollution.

2.9.2. Affected Environment

2.9.2.1. Surface Water Resources

Surface water resources in the general project vicinity consist of San Pablo and Wildcat creeks and an unnamed drainage at the beginning of the westbound off-ramp at San Pablo Dam Road (approximately Station 40+70 on Layout Sheet L-3 in Appendix A). The creeks cross under I-80 in concrete culverts and flow west to San Pablo Bay. San Pablo Creek is perennial, and flows are controlled by the East Bay Municipal Utility District (EBMUD) from regulation of water levels in San Pablo Reservoir, which is approximately five miles upstream. Flows in Wildcat Creek are controlled by two reservoirs, Jewel Lake and Lake Anza, which are located well upstream in Tilden Park. Wildcat Creek is ephemeral, although a series of pools remain during the dry season, separated by stretches of dry creek bed (Wise et al. 2007). San Pablo and Wildcat creeks within and near the project area support a riparian corridor but have been confined by urban infill and altered with concrete, riprap, and bank stabilization devices. The natural channels of the creeks have eroded.

Water Supply

EBMUD supplies water and provides wastewater treatment to parts of Alameda and Contra Costa counties. The Mokelumne River is the primary source of water used to serve the 1.3 million people in the EBMUD service area and is fed by runoff from the Sierra Nevada, collected in Pardee and Camanche reservoirs, and ultimately transported to the San Francisco Bay Area. The San Pablo Reservoir can also be used for water supply.

Existing Surface Water Quality

Total Maximum Daily Loads (TMDLs) are thresholds established for specific pollutants and water bodies where water quality standards are not being met. TMDLs define how much of a pollutant a water body can tolerate and meet water quality standards. TMDLs have been established for the San Francisco Bay for mercury and for diazinon (from some insecticides). A TMDL is in development for polychlorinated biphenyls (PCBs). California's 303(d) list of Water Quality Limited Segments (SWRCB 2006) includes both San Pablo and Wildcat creeks as impaired for diazinon from urban runoff/storm sewers.

2.9.2.2. Groundwater Resources

The proposed project is in the large, regional Santa Clara Valley groundwater basin and the East Bay Plain groundwater subbasin. The subbasin aquifer system consists of unconsolidated sediments of Quaternary age. Groundwater levels have been recorded at relatively shallow depths (seven to 12 feet) in the China Slide area (directly east of San Pablo Dam Road at the interchange), at 30 to 40 feet depth near Riverside Elementary School, and at 43 feet below ground surface near El Portal Drive. Groundwater and surface water in the project area are not used as sources of municipal water supply.

The San Francisco RWQCB does not identify any wells or groundwater contamination areas at or near the project area (SFRWQCB 1999).

2.9.3. Environmental Consequences

Temporary impacts could occur during construction activity from runoff eroding exposed soils or washing away construction material, and oils and grease from construction equipment and activities. Permanent impacts can be associated with additional pollutants or sediments entering roadway runoff. The following summarizes the potential for these effects from the project.

2.9.3.1. Short-Term (Construction) Impacts

The project would be constructed in stages, depending on funding, with a total construction schedule estimated to last approximately two years, extending over two rainy seasons.

During construction, there is a potential for temporary adverse impacts due to increased erosion and subsequent transport of sediment to surface waters. Soil erosion could increase the suspended solids, dissolved solids, and organic pollutants in the

stormwater runoff generated in the project area. Over the course of construction, project activities would disturb soils and potentially affect surface waters. These activities include, but are not limited to, surface excavation; stockpiling of soils, sediments, and gravels; possible relocation of utilities; installation of traffic signs; construction of new roadways; paving and grinding; and concrete curing.

The potential also exists for spills and leaks of fluids from vehicles and equipment used during construction. Spills and leaks could pose a threat to water quality if contaminants were to enter water bodies and adversely affect vegetation and wildlife habitat. The magnitude of the impact would depend on the amount and type of material spilled.

2.9.3.2. Long-Term (Permanent) Impacts

Permanent impacts could potentially result from sediment carried by stormwater from project-related erosion and vehicle traffic-related pollutants carried in stormwater runoff.

In general, heavy metals associated with vehicle tire and brake wear, oil, grease, and exhaust emissions are the primary toxic pollutants associated with transportation corridors. The project would not increase overall traffic volumes but would slightly increase impervious surface area; however, the total storm water runoff and change in water quality is expected to have no effect or minimal effect on total pollutant emissions or loadings related to vehicles.

2.9.4. Avoidance, Minimization, and/or Mitigation Measures

Caltrans has been issued a Statewide NPDES permit for construction activities, and each project must comply with the conditions of the permit. A SWPPP is required by this permit for this project. The SWPPP will include stormwater best management practices (BMPs) applicable to this project during construction. These BMPs are expected to include measures for temporary soil stabilization and sediment control. Additionally, permanent erosion control BMPs will be addressed as part of the project design process. The statewide Caltrans Storm Water Management Plan (SWMP) identifies temporary (short-term) and permanent (long-term) BMPs, which were reviewed for the preliminary recommendation of project specific measures summarized in the following subsections. BMPs fall into four categories: Design Pollution Prevention, Treatment, Construction Site, and Maintenance.

2.9.4.1. Short-Term (Construction) BMPs

Riparian areas exist within the channels of San Pablo and Wildcat creeks in the project area. These channels will be identified as environmentally sensitive areas (ESAs) for protection as necessary with high-visibility fencing and erosion control. Earth-moving activities will also be necessary during construction. Stabilized construction entrances/exits will be used to prevent the tracking of mud and dirt off-site.

Temporary BMPs will be implemented during project construction to comply with the NPDES conditions and will meet Caltrans Best Available Technology/Best Conventional Technology for construction projects. Compliance with the NPDES conditions and adherence to the City of San Pablo and Contra Costa County requirements would reduce or eliminate potentially adverse construction-related effects.

The most effective BMPs that can be used to minimize erosion include:

- Preserving existing vegetation;
- Avoiding or minimizing work during the rainy season (May to October) and during any rainfall events or immediately following precipitation when the ground surface is wet;
- Limiting the amount and length of exposure of graded soil and soil stockpiles; and
- Protecting exposed spoils through the use of mulches or erosion control blankets/mats.

Approved erosion control BMPs are described in the *Caltrans Construction Site Best Management Practices Manual* (Caltrans 2003). Temporary erosion control and water quality measures will be defined in detail in the project SWPPP and designated as line items in the plans, specifications, and estimates.

Table 2.9-1 lists the minimum requirements to be implemented during project construction.

Table 2.9-1 Minimum Requirements for Temporary BMPs

Category	Minimum Requirement(s)
Soil Stabilization Practices	SS-1 Scheduling SS-2 Preservation of Existing Vegetation SS-6 Straw Mulch SS-7 Erosion Control Blankets SS-10 Outlet Protection/ Velocity Dissipation Devices
Sediment Control Practices	SC-1 Silt Fence SC-5 Fiber Rolls SC-7 Boulevard Sweeping and Vacuuming SC-10 Storm Drain Inlet Protection
Wind Erosion Control	WE-1 Wind Erosion Control
Non-Storm Water Control	NS-2 Dewatering Operation NS-6 Illicit Connection/Illegal Discharge Detection and Reporting NS-8 Vehicle and Equipment Cleaning NS-9 Vehicle and Equipment Fueling NS-10 Vehicle and Equipment Maintenance
Waste Management & Materials Pollution Control	WM-1 Material Delivery and Storage WM-2 Material Use WM-3 Stockpile Management WM-4 Spill Prevention and Control WM-5 Solid Waste Management WM-8 Concrete Waste Management WM-9 Sanitary/Septic Waste Management
Temporary Construction Practice	TC-1 Stabilized Construction Entrance/Exit

Source: Caltrans 2003

2.9.4.2. Long-Term (Permanent) BMPs

Permanent (post-construction) BMPs include the minimization of land disturbance, minimization of impervious surfaces, treatment of runoff, and energy dissipation devices. Permanent BMPs included with the project will reduce the suspended particulate loads (and thus pollutants associated with the particulates) entering waterways after construction is completed. This category of water quality control measures can be identified as including both Design Pollution Prevention BMPs and Treatment BMPs.

Permanent Stormwater Treatment BMPs will be considered for this project as it will involve major construction over three acres and add more than one acre of new impervious area. The Treatment BMP strategy is based on the General Purpose Pollutant Removal order and ranks the following measures for consideration:

- I. Infiltration Devices
- II. Biofiltration Strips and Wet Basins
- III. Biofiltration Swales and Austin Vault Sand Filters
- IV. Detention Devices, Delaware Filters, or Multi-Chambered Treatment Trains

2.9.4.3. BMPs Considered Feasible

Treatment of stormwater runoff for the project will be implemented to the Maximum Extent Practicable. However, the project is in a developed area with existing constraints that limit the extent and location of Treatment BMPs. Among the Treatment BMPs listed above, Biofiltration Swales and Strips, Austin Vault Sand Filters, and Detention Devices have been identified as potentially feasible for this project.

2.9.4.4. BMPs Considered Not Feasible

Treatment BMPs considered but preliminarily determined infeasible for this project include Infiltration Devices, Wet Basins, Delaware Sand Filters, and Multi-Chambered Treatment Trains. These measures could be reconsidered during final project design when more information about project plans, drainage design, and site conditions is available.

2.10. Geology, Soils, and Seismicity

This section is based on the geology and geotechnical assessments performed for the proposed project. A *Phase 1 Geologic Hazards Evaluation Report* summarizes the initial assessment of geologic conditions and constraints in the project area (URS 2007). Preliminary foundation reports were prepared to address subsurface conditions at four major structures proposed for the project (URS 2008f,m,n, and 2009a).

2.10.1. Regulatory Setting

For geologic and topographic features, the key Federal law is the Historic Sites Act of 1935, which establishes a national registry of natural landmarks and protects “outstanding examples of major geological features.” Topographic and geologic features are also protected under CEQA.

This section also discusses geology, soils, and seismic concerns as they relate to public safety and project design. Earthquakes are prime considerations in the design and retrofit of structures. The Department’s Office of Earthquake Engineering is responsible for assessing the seismic hazard for Department projects. The current

policy is to use the anticipated Maximum Credible Earthquake from young faults in and near California. The Maximum Credible Earthquake is defined as the largest earthquake that can be expected to occur on a fault over a particular period of time.

2.10.2. Affected Environment

2.10.2.1. Site Geology

The project area is in the San Francisco Bay block of the northern Coast Ranges and the Coast Ranges seismotectonic province, a region characterized by a moderate to high level of seismicity. The Coast Ranges are a north-northwest to northwest-trending series of ridges and intervening valleys that extend from the Oregon border to the north to the Santa Ynez River near Santa Barbara to the south.

The I-80/San Pablo Dam Road Interchange is at the northwestern end of the San Pablo Ridge. Underlying the ridge is the Orinda Formation, which generally consists of discontinuous, lenticular beds (lens-shaped formations) of claystone/shale, sandstone, and minor conglomerate. Most rocks in this formation contain significant amounts of montmorillonite clay, which expands when saturated. Slope stability in the Orinda Formation is poor. The shrinkage and swelling from the high montmorillonite content of the clays facilitates downhill soil creep. Slope stability is also poor as a result of the weakness of the bedrock (Woodward Clyde Consultants 1978).

Colluvial soils and landslide deposits developed from the Orinda Formation mantle the bedrock to various depths. The existing El Portal Drive and McBryde Avenue bridge structures rest on undivided Quaternary deposits (Graymer et al. 1995). The Pleistocene or Holocene deposits include alluvial fan, levee, stream channel, bay mud, floodplain, and floodbasin deposits. Geotechnical test borings for the El Portal Drive and McBryde Avenue structures indicate subsurface soils generally consisting of loose to dense sands and stiff to hard clays, with occasional gravels (Caltrans 1952). In the northern part of the project area, I-80 was originally constructed on fill placed within an old drainage channel. The artificial fill, apparently as deep as 60 feet, consists of rock and surficial deposits imported from nearby cuts and quarries (Caltrans 1954). Other areas within the project may contain artificial fill of varying thickness and unknown compaction.

2.10.2.2. Geologic Hazards

Existing geologic hazards include the potential for landslide hazard, surface fault rupture, earthquake shaking, and liquefaction.

Landslide Hazard

At least one study of the northern Hayward fault indicates that the entire project area sits on a very large ancient landslide that extends westward past I-80 for more than 0.25 mile, essentially outlining the contact between the Contra Costa Group (Orinda Formation) and the Quaternary alluvial deposits to the south and west (Herd 1978). A review of a published landslide map of this same area indicates the presence of many small slides but does not show a large slide encompassing the entire project area (Nilsen 1975).

One of the specific principal geologic hazards in the project area is the China Slide east of San Pablo Dam Road (Caltrans 1984). This slide has shown instability since the late 1950s (Caltrans 1988). In 1957, as part of the improvements along San Pablo Dam Road for the I-80 construction, an 80-foot-high cut slope was completed. Movement developed in the cut face within a year after completion, and the instability gradually increased (Caltrans 1993a). For years, the toe of the slide created a recurring “hump” in the pavement in the eastbound lane of San Pablo Dam Road. Until Caltrans assumed maintenance of the roadway in 1974, the City of San Pablo had to remove the hump every year. In 1983, the hump was recorded as being three feet high and impeding traffic (Caltrans 1983). The roadway was subsequently realigned to the west to allow the active slide to continue heaving without affecting the adjacent pavement. The field investigations for the proposed project noted possible indications of pavement stress in the eastbound lanes of San Pablo Dam Road.

The China Slide is at least partially located in the Hayward fault zone. The presence of the fault is likely a cause of the continued instability of the slope. The fault is persistently creeping (Lienkaemper et al. 1991). Faulting has typically sheared and/or crushed the rock in this zone, weakening slope stability. The fault also creates erratic and discontinuous groundwater barriers, contributing to the saturation of the montmorillonite-rich clayey colluvium and claystone bedrock, which can increase slope movement.

Historic slope instability in the project area is also present on the east side of I-80, near the eastbound on-ramp from San Pablo Dam Road. The most recent episode of slope failures reportedly occurred in 2006. Slope failures in this area have been addressed with installation of rock fill buttresses, a soil nail wall, keystone walls; removal of unstable soils; and installation of drainage systems.

Surface Fault Rupture

The San Pablo Dam Road Overcrossing is close to the Hayward fault, an active, right-lateral, strike-slip fault that is considered the most likely source of the next major earthquake in the Bay Area (USGS 2003). The Hayward fault is part of the San Andreas fault system and extends for about 60 miles from the area of Mount Misery, east of San Jose, to Point Pinole on San Pablo Bay.

Surface fault rupture tends to occur along existing fault traces, and the highest potential for surface faulting is along existing fault traces that have had Holocene (last 11,000 years) fault displacement. The California Geological Survey (formerly the California Division of Mines and Geology) has produced maps showing Alquist-Priolo Earthquake Fault Zones along faults with known Holocene surface rupture activity. As shown on the official map of the Richmond Quadrangle (CGS 2003), the western boundary of the regulatory Alquist-Priolo Earthquake Fault Zone for the Hayward fault passes through San Pablo Dam Road in the vicinity of Amador Street, at least 100 feet east of the proposed replacement San Pablo Dam Road Overcrossing (Alternative 2).

Caltrans boring B-3, drilled in 1989 between I-80 and the eastbound on-ramp from San Pablo Dam Road, was logged as encountering serpentinite (Caltrans 1989). Although this boring was located outside of the regulatory Alquist-Priolo Earthquake Fault Zone, the presence of serpentinite this close to the Hayward fault is suggestive of a possible fault trace.

Earthquake Shaking

The project area would be subjected to strong ground shaking during future large earthquakes on the Hayward fault as well as from other regional faults. The last large earthquake on the Hayward fault occurred in October 1868, along the southern segment of the fault. This moment magnitude⁹ (M) 6.8 event toppled buildings in Hayward and other localities within about three miles of the fault. The surface rupture associated with this earthquake is thought to have extended for approximately 20 miles, from Warm Springs to San Leandro, with a maximum reported displacement of about three feet. Recent paleoseismic trenching indicates that the last surface-rupturing earthquake along the northern portion of the Hayward fault was sometime

⁹ Moment magnitude is a measure of the total amount of energy of an earthquake, considering (among other factors) the area of a fault's rupture surface and the distance the earth moves along the fault. Each whole-number increase (e.g., 4.8 to 5.8 to 6.8) represents a tenfold increase in the size of the ground motion.

between 1626 and 1724 (Lienkaemper et al. 1997). The Working Group on California Earthquake Probabilities (USGS 2003) assigns mean maximum earthquakes of **M** 6.5 and 6.7, and mean recurrence intervals of 312 and 292 years, for the northern and southern segments of the Hayward fault, respectively.

Based on the estimated recurrence interval of this fault, and the length of time since the last known occurrence, the USGS (2003) considers the Hayward-Rodgers Creek fault system the most likely source of the next **M** 6.7 or larger earthquake in the Bay Area, with a 27 percent probability of occurring between 2002 and 2032. The USGS model also incorporates a scenario where the Hayward fault ruptures along with the Rodgers Creek fault. Rupture of the entire length of both faults would generate a mean maximum earthquake of **M** 7.3 (USGS 2003). Rupture of the Rodgers Creek fault and the northern segment of the Hayward Fault would generate a maximum event of **M** 7.1.

Liquefaction and Lateral Spreading

Liquefaction is a soil behavior phenomenon in which a soil loses a significant amount of strength from excess pore water pressure generated by strong earthquake shaking. Loose to medium dense sands below the groundwater table are generally considered to be susceptible to liquefaction. California Geological Survey Seismic Hazard Zone maps indicate that the liquefaction susceptibility of the Contra Costa County portion of the Richmond quadrangle has not yet been evaluated (CGS 2003). A review of the available logs of previously drilled geotechnical borings indicates that subsurface conditions in the area of the San Pablo Dam Road Interchange do not appear to be particularly conducive to liquefaction.

However, the logs of borings reviewed in other portions of the project area (in particular, the Riverside Avenue pedestrian overcrossing) indicate a potential for susceptibility to liquefaction. Boring logs show soil layers exceeding five feet in thickness, that were below groundwater level and within 50 feet of the surface, that had very low blow counts and were logged as loose or slightly compact (Caltrans 1952, 1954, 1956, 1976, 1989, 1992, 1993a–b, 1994a–b, 1997b–e, 1999).

Lateral spreading occurs when a subsurface layer liquefies and causes horizontal movement or displacement of the overlying mass. This is considered a low risk based on available information, but the potential for lateral spreading depends on actual subsurface conditions that would be specifically evaluated during final design.

2.10.3. Environmental Consequences

2.10.3.1. Surface Fault Rupture and Earthquake Shaking

The Bay Area is seismically active, and all sites in the region have a reasonably high potential of experiencing strong earthquake shaking in the future. Elements of the project such as bridges and overcrossings would be exposed to strong ground shaking. The potential exists for substantial damage to engineered structures and risk of injury or loss of life at facilities that cannot withstand the ground motions created by a major seismic event. There is also a potential for surface fault rupture along the Hayward fault zone, which is near the project limits. A permanent structure such as a bridge or a retaining wall that crosses an area that suffers surface fault rupture could be significantly damaged or fail.

Because of the risk of surface fault rupture near the project, particular attention was focused on defining and comparing the location of the Alquist-Priolo Earthquake Fault Zone with the proposed structural elements of the project. Of the proposed structures, the replacement San Pablo Dam Road Overcrossing abutment on the east side of I-80 is the closest to the fault zone, which is over 100 feet from the San Pablo Dam Road/Amador Street intersection. A thorough review was performed of the available data, including previous fault investigation reports for nearby sites, to assess the risk of surface fault rupture to the proposed overcrossing (URS 2008f). The nearest part of the proposed closed-face eastern abutment for the Alternative 2 overcrossing would be at least 50 feet from Caltrans boring B-3. The conclusion of the review was that the risk of surface fault rupture to the proposed overcrossing is negligible. The Caltrans Office of Geotechnical Support concurred with this conclusion and stated that no further work to address surface faulting is needed if this abutment location is used.

According to the California Geological Survey map of the Richmond Quadrangle (CGS 2003), the western boundary of the Alquist-Priolo Earthquake Fault Zone for the Hayward fault is more than 500 feet east of the site of the replacement pedestrian overcrossing proposed for the project. Therefore, the risk of surface fault rupture at this site is also considered to be low.

Surface fault rupture at nonstructural elements of the project, such as roadway surfaces on the east side I-80, could still result in damage such as cracked or offset surfaces that could require temporary roadway closure until repaired. This risk is also present with the existing condition and the No Build Alternative.

2.10.3.2. Liquefaction

The I-80/San Pablo Dam Road Interchange area does not appear to be particularly conducive to liquefaction, although boring logs drilled for the existing pedestrian overcrossing at Riverside Drive (Caltrans 1994b) show a layer of loose to slightly compact, saturated silty sand/sandy silt encountered about 40 feet below ground surface. This layer could potentially liquefy under strong ground shaking conditions. Without further information on specific subsurface conditions, it is assumed that there is some risk of damage to the proposed replacement overcrossing and soundwalls or retaining walls built in this area.

2.10.3.3. Landslide

The China Slide has shown instability since the late 1950s, and its movement could damage proposed roadway surfaces. The portion of San Pablo Dam Road on the east side of I-80 at the toe of the China Slide slope area is especially at risk. The project also has the potential to exacerbate slope instability by excavating into the toe of the slope area. The two build alternatives have different potential for impacts and avoidance based on the location of the slide and the areas of known slope instability:

- **Lanes Added Alternative:** This alternative's design would shift the current alignment of San Pablo Dam Road slightly east of, but not connecting to, the toe of the China Slide while staying within the existing right-of-way. The roadway would be on approximately the same alignment, but roadway shoulders may slightly extend toward the toe of the slide area, but this change is relatively minor.
- **Tight Diamond Alternative:** This alternative would realign the San Pablo Dam Road Overcrossing to the west of the toe of the China Slide area. This would reduce the risk of future slope failure affecting San Pablo Dam Road. Amador Street would be realigned and extended to its new intersection location with San Pablo Dam Road to the east of the current intersection. Realigning Amador Street would help avoid the toe of the existing unstable slope.

2.10.4. Avoidance, Minimization, and/or Mitigation Measures

Additional geotechnical subsurface and design investigations and recommendations will be performed during the final design and engineering phase for the project. The investigations will include site-specific evaluation of subsurface conditions at the actual locations of proposed foundations during final design. The following will be considered during that phase:

- Further engineering design work will be carried out in accordance with the Department's Seismic Design Criteria and the regulations detailed in the Alquist-Priolo Earthquake Fault Zoning Act.
- Project elements will be designed and constructed to meet seismic design requirements for ground shaking and ground motions, as determined for the project location and site conditions.
- Additional field investigations will be performed, including geotechnical borings and evaluation of soil samples from the borings, to determine engineering properties of the soils and recommendations for foundations and footings. The investigations will include delineation of potentially liquefiable materials and soils that are highly expansive, prone to heaving or instability, or highly erosive. Preliminary geotechnical findings already include recommendations for borings at proposed footing and foundation locations, and laboratory testing to define engineering properties of the soils. Liquefaction and ground deformation susceptibility, effects on foundation capacity, and recommendations to accommodate anticipated consequences of liquefaction will be defined as a result of these studies.
- Measures to minimize landsliding and slope instability will also be further defined during final design. Retaining walls are already included in the project to strengthen proposed road cuts. Further geotechnical review and recommendations will be used to define or verify appropriate slope designs based on parent material, necessary roadcuts, and/or proposed fill.

Vegetative seeding, slope covers, and drainage measures to collect and control runoff will minimize potential soil erosion during and after construction. Stormwater runoff measures are discussed in Section 2.9.4.

2.11. Hazardous Waste and Materials

The following discussion is based on the Hazardous Waste Technical Report (URS 2008g) prepared for the proposed project.

2.11.1. Regulatory Setting

Hazardous materials and hazardous wastes are regulated by many State and Federal laws. These laws include not only specific statutes governing hazardous waste but also a variety of laws regulating air and water quality, human health, and land use.

The primary Federal laws regulating hazardous wastes/materials are the Resource Conservation and Recovery Act of 1976 and the Comprehensive Environmental Response, Compensation and Liability Act of 1980. The purpose of the latter act, often referred to as Superfund, is to clean up contaminated sites so that public health and welfare are not compromised. The Resource Conservation and Recovery Act provides for “cradle to grave” regulation of hazardous wastes. Other Federal laws include:

- Community Environmental Response Facilitation Act of 1992;
- Clean Water Act;
- Clean Air Act;
- Safe Drinking Water Act;
- Occupational Safety and Health Act;
- Atomic Energy Act;
- Toxic Substances Control Act; and
- Federal Insecticide, Fungicide, and Rodenticide Act.

In addition to the acts listed above, Executive Order 12088, Federal Compliance with Pollution Control, mandates that necessary actions be taken to prevent and control environmental pollution when Federal activities or Federal facilities are involved.

Hazardous waste in California is regulated primarily under the authority of the Federal Resource Conservation and Recovery Act of 1976 and the California Health and Safety Code. Other California laws that affect hazardous waste are specific to handling, storage, transportation, disposal, treatment, reduction, cleanup and emergency planning.

Worker health and safety and public safety are key issues when dealing with hazardous materials that may affect human health and the environment. Proper disposal of hazardous material is vital if it is disturbed during project construction.

2.11.2. Affected Environment

A hazardous waste evaluation was conducted for the proposed project and is documented in the Hazardous Waste Technical Report (URS 2008g). The evaluation included the following:

- An Environmental Data Resources (EDR), Inc. environmental information database search. The records review study area extended approximately one mile

around the I-80/San Pablo Dam Road Interchange and the I-80 corridor within the project limits.

- A review of the project plans, historical aerial photographs, topographic maps, and Sanborn® maps (historical fire insurance maps) within approximately 0.5 mile of the proposed right-of-way.
- A site and adjacent area field review of the existing and proposed right-of-way and adjoining properties.
- Contact and coordination with agencies and personnel to obtain information on sites identified in the EDR search. This included a review of available files at the Contra Costa County Health Services Department and at the City of San Pablo Building and Planning Department.

No potential hazardous waste sites were identified within the right-of-way of the project for either build alternative. Outside of the proposed right-of-way but within the 0.5-mile study area, 12 properties were identified that currently or previously handled or stored hazardous materials. At nine of the 12 properties or sites, no identified soil or groundwater contamination was reported or observed. The remaining three sites are retail gasoline stations with a record of petroleum hydrocarbon releases. All are located upgradient of the project, which can present a risk to the project if contaminant releases have migrated to the project site (or will in the future). These sites are not in the project right-of-way, and remediation has taken place or is ongoing.

Existing structures within the project limits were not inspected, entered, or tested for asbestos or other hazardous building materials as part of the hazardous waste evaluation. All visual observations were conducted from publicly available vantage points along the area roads and or properties.

2.11.3. Environmental Consequences

There are no known or listed hazardous waste sites or properties within the proposed right-of-way. Outside of the right-of-way, three retail gasoline stations were identified with a record of petroleum hydrocarbon releases. Two are located on San Pablo Avenue, and the third is 0.4 mile east of I-80 on San Pablo Dam Road. Based on their locations, the risk for hydrocarbons migrating from contaminated sites to shallow groundwater in the proposed right-of-way is considered low because of their distance from the project.

Exhaust from vehicle traffic on I-80 and San Pablo Dam Road may have contaminated surface soils within the project limits with aerially deposited lead (ADL). ADL resulted from the use of automotive leaded gasoline until the mid-1980s. This contamination is likely present in exposed soils on streets adjacent to I-80 and other nearby local streets.

The project would acquire and remove some existing residential and commercial structures within the proposed right-of-way. Building materials in these structures may contain hazardous materials such as asbestos and lead paint, and exposure to airborne contaminants from these materials during demolition could affect safety and health.

Gasoline, diesel fuel, oil, and lubricants for operation of construction equipment are typically used, handled, and stored by contractors on all roadway construction projects. In all construction projects, there is a potential for the accidental release of fuels or lubricants from construction equipment or vehicles. No specific risks related to such a release have been identified for the proposed project. Contractors are required to handle hazardous materials in accordance with applicable laws, including health and safety requirements. No acutely hazardous materials would be used or stored on-site during project construction.

2.11.4. Avoidance, Minimization, and/or Mitigation Measures

There is a potential for residual ADL in the surface soil and petroleum hydrocarbons in shallow groundwater. Testing for ADL will be performed at the Plans, Specifications and Estimates (PS&E) stage prior to project construction. If ADL is found, special handling of the contaminated soil would be required and would include implementing a health and safety plan. If construction encounters soil or groundwater contamination, all activities involving contaminated soil or groundwater will be planned to comply with the various regulatory agencies' requirements.

Existing structures that will be removed or modified by the project should be tested for the presence of hazardous materials, such as lead-based paint and asbestos. If present, these materials must be handled and disposed accordingly.

The costs for special handling of ADL-contaminated soils, if any, is unknown at this stage of preliminary design and environmental review, but could range from \$50,000 to \$75,000 or more depending on the number of samples collected and the laboratory analyses used. The costs for special handling, if required, of contaminated building materials from structures that have to be removed would be estimated during final design.

2.12. Air Quality

This section summarizes the Air Quality Impact Assessment (URS 2009b) and Mobile Source Air Toxics (URS 2008h) technical reports prepared for the project.

2.12.1. Regulatory Setting

The Clean Air Act as amended in 1990 is the Federal law that governs air quality. Its counterpart in California is the California Clean Air Act of 1988. These laws set standards for the quantity of pollutants that can be in the air. At the Federal level, these standards are called National Ambient Air Quality Standards (NAAQS). Standards have been established for six criteria pollutants that have been linked to potential health concerns: carbon monoxide (CO), nitrogen dioxide (NO₂), ozone (O₃), particulate matter, lead, and sulfur dioxide (SO₂).

Under the 1990 Clean Air Act Amendments, the U.S. Department of Transportation cannot fund, authorize, or approve Federal actions to support programs or projects that are not first found to conform to State Implementation Plan for achieving the goals of the Clean Air Act requirements. Conformity with the Clean Air Act takes place on two levels—first, at the regional level, and second, at the project level. The proposed project must conform at both levels to be approved.

Regional-level conformity in California is concerned with how well the region is meeting the standards set for CO, NO₂, O₃, and particulate matter. California is in attainment for the other criteria pollutants. At the regional level, Regional Transportation Plans (RTPs) are developed that include all of the transportation projects planned for a region over a period of years, usually at least 20. Based on the projects included in the RTP, an air quality model is run to determine whether or not the implementation of those projects would conform to emission budgets or other tests showing that attainment requirements of the Clean Air Act are met. If the conformity analysis is successful, the regional planning organization, such as MTC for the Bay Area and the appropriate Federal agencies, such as the Federal Highway Administration, make the determination that the RTP is in conformity with the State Implementation Plan for achieving the goals of the Clean Air Act. Otherwise, the projects in the RTP must be modified until conformity is attained. If the design and scope of the proposed transportation project are the same as described in the RTP, then the proposed project is deemed to meet regional conformity requirements for purposes of project-level analysis.

Conformity at the project-level also requires “hot spot” analysis if an area is “nonattainment” or “maintenance” for CO and/or particulate matter. A region is a nonattainment area if one or more monitoring stations in the region fail to attain the relevant standard. Areas that were previously designated as nonattainment areas but have recently met the standard are called “maintenance” areas. Hot spot analysis is essentially the same, for technical purposes, as CO or particulate matter analysis performed for NEPA purposes. Conformity does include some specific standards for projects that require a hot spot analysis. In general, projects must not cause the CO standard to be violated, and in nonattainment areas the project must not cause any increase in the number and severity of violations. If a known CO or particulate matter violation is located in the project vicinity, the project must include measures to reduce or eliminate the existing violation(s) as well.

A CO hot spot analysis was completed and is discussed in this section. A hot spot analysis for particulate matter of less than ten and 2.5 microns in diameter (PM₁₀ and PM_{2.5}, respectively) is not required for project-level Federal conformity purposes because the region is in attainment or is unclassified for these pollutants.

2.12.2. Affected Environment

The proposed project is located in a subregion that is defined by the Bay Area Air Quality Management District (BAAQMD 2001) within portions of northern Alameda County and western Contra Costa County and extends from north of Pinole to San Leandro. In this area, marine air traveling through the Golden Gate, as well as across San Francisco and through the San Bruno Gap, is a dominant weather factor. At the northern end of this subregion, near the project site, prevailing winds are from the south-southwest, keeping temperatures within a narrow range. Temperatures in summer average in the mid 70s, with lows in the mid 50s. Winter highs are in the mid to high 50s, with lows in the low to mid 40s.

The air pollution potential is lowest for the parts of the subregion that are closest to the Bay, due largely to good ventilation and few pollutants from upwind sources. Light winds in the evenings and early mornings occasionally cause elevated pollutant levels. This subregion contains industrial air pollution sources located primarily north and south of the City of San Pablo. Traffic and congestion along I-80, San Pablo Dam Road, and San Pablo Avenue are major sources of local air pollution. Table 2.12-1 shows the applicable standards and attainment status of criteria pollutants in the project area.

Table 2.12-1 State and National Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards ¹		National Standards ²	
		Concentration	Attainment Status	Concentration ³	Attainment Status
Ozone (O ₃)	8 Hour	0.070 ppm (137 µg/m ³)	N ⁹	0.075 ppm (157 µg/m ³)	N ⁴
	1 Hour	0.09 ppm (180 µg/m ³)	N		See Footnote 5
Carbon Monoxide (CO)	8 Hour	9.0 ppm (10 mg/m ³)	A	9 ppm (10 mg/m ³)	A ⁶
	1 Hour	20 ppm (23 mg/m ³)	A	35 ppm (40 mg/m ³)	A
Nitrogen Dioxide (NO ₂)	1 Hour	0.18 ppm (338 µg/m ³)	A	NA	NA
	Annual Arithmetic Mean	0.030 ppm (56 µg/m ³)	NA	0.053 ppm (100 µg/m ³)	A
Sulfur Dioxide (SO ₂)	24 Hour	0.04 ppm (105 µg/m ³)	A	0.14 ppm (365 µg/m ³)	A
	1 Hour	0.25 ppm (655 µg/m ³)	A	NA	NA
	Annual Arithmetic Mean	NA	NA	0.030 ppm (80 µg/m ³)	A
Particulate Matter (PM ₁₀)	Annual Arithmetic Mean	20 µg/m ³	N ⁷	NA	NA
	24 Hour	50 µg/m ³	N	150 µg/m ³	U
Particulate Matter - Fine (PM _{2.5})	Annual Arithmetic Mean	12 µg/m ³	N ⁷	15 µg/m ³	A
	24 Hour	NA	NA	35 µg/m ³ See Footnote 10	U
Sulfates	24 Hour	25 µg/m ³	A	NA	NA
Lead	Calendar Quarter	NA	NA	1.5 µg/m ³	A
	30 Day Average	1.5 µg/m ³	A	NA	NA
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m ³)	U	NA	NA
Vinyl Chloride (chloroethene)	24 Hour	0.010 ppm (26 µg/m ³)	No information available	NA	NA
Visibility Reducing particles	8 Hour (10:00 to 18:00 PST)	See Footnote 8	U	NA	NA

Notes: A=Attainment, N=Nonattainment, U=Unclassified; mg/m³=milligrams per cubic meter; ppm=parts per million; µg/m³=micrograms per cubic meter, NA=Not Applicable, PST=Pacific Standard Time

1. California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1-hour and 24-hour), nitrogen dioxide, suspended particulate matter - PM₁₀, and visibility reducing particles are values that are not to be exceeded. The standards for sulfates, Lake Tahoe carbon monoxide, lead, hydrogen sulfide, and vinyl chloride are not to be equalled or exceeded. If the standard is for a 1-hour, 8-hour or 24-hour average (i.e., all standards except for lead and the PM₁₀ annual standard), then some measurements may be excluded. In particular, measurements are excluded that ARB determines would occur less than once per year on the average. The Lake Tahoe CO standard is 6.0 ppm, a level one-half the national standard and two-thirds the State standard.

2. National standards shown are the "primary standards" designed to protect public health. National standards other than for ozone, particulates and those based on annual averages are not to be exceeded more than once a year. The 1-hour ozone standard is attained if, during the most recent three-year period, the average number of days per year with maximum hourly concentrations above the standard is equal to or less than one. The 8-hour ozone standard is attained when the 3-year average of the 4th highest daily concentrations is 0.075 ppm (75 ppb) or less. The 24-hour PM₁₀ standard is attained when the 3-year average of the 99th percentile of monitored concentrations is less than 150 µg/m³. The 24-hour PM_{2.5} standard is attained when the 3-year average of 98th percentiles is less than 35 µg/m³.

Except for the national particulate standards, annual standards are met if the annual average falls below the standard at every site. The national annual particulate standard for PM₁₀ is met if the 3-year average falls below the standard at every site. The annual PM_{2.5} standard is met if the 3-year average of annual averages spatially-averaged across officially designed clusters of sites falls below the standard.

3. National air quality standards are set by US EPA at levels determined to be protective of public health with an adequate margin of safety.

4. In June 2004, the Bay Area was designated as a marginal nonattainment area of the national 8-hour ozone standard. US EPA lowered the national 8-hour ozone standard from 0.80 to 0.75 PPM (i.e. 75 ppb) effective May 27, 2008. EPA will issue final designations based upon the new 0.75 ppm ozone standard by March 2010.

5. The national 1-hour ozone standard was revoked by U.S. EPA on June 15, 2005.

6. In April 1998, the Bay Area was redesignated to attainment for the national 8-hour carbon monoxide standard.

7. In June 2002, CARB established new annual standards for PM_{2.5} and PM₁₀.

8. Statewide VRP Standard (except Lake Tahoe Air Basin): Particles in sufficient amount to produce an extinction coefficient of 0.23 per kilometer when the relative humidity is less than 70 percent. This standard is intended to limit the frequency and severity of visibility impairment due to regional haze and is equivalent to a 10-mile nominal visual range.

9. The 8-hour CA ozone standard was approved by the Air Resources Board on April 28, 2005 and became effective on May 17, 2006.

10. U.S. EPA lowered the 24-hour PM_{2.5} standard from 65 µg/m³ to 35 µg/m³ in 2006. EPA issued attainment status designations for the 35 µg/m³ standard on December 22, 2008. EPA has designated the Bay Area as nonattainment for the 35 µg/m³ PM_{2.5} standard. The EPA designation will be effective 90 days after publication of the regulation in the Federal Register. President Obama has ordered a freeze on all pending Federal rules; therefore, the effective date of the designation is unknown at this time.

Source: BAAQMD, updated December 30, 2008: http://www.baaqmd.gov/pln/air_quality/ambient_air_quality.htm

2.12.3. Environmental Consequences

2.12.3.1. Permanent Impacts

Air quality issues relate to a range of different pollutants and their individual regulatory standards. The evaluation of air quality impacts addressed in this section focuses on the project's conformity with the regional air quality framework and the project's potential to result in an adverse impact to the region's compliance with the relevant standards.

2.12.3.2. State Implementation Plan Conformity

This project will involve Federal transportation funds; therefore, the transportation conformity regulation, referred to as the Transportation Conformity Rule, applies. A version of the U.S. Environmental Protection Agency's (USEPA's) Transportation Conformity Rule has been incorporated into the Bay Area portion of the State Implementation Plan (SIP). For the San Francisco Bay Area, each updated version of the RTP and Regional Transportation Improvement Program (TIP) are evaluated in a regional conformity analysis by MTC, to support a request for approval by FHWA.

Project Design and Funding in RTP and TIP

The project is included in MTC's most recent RTP, the *Transportation 2035 Plan for the San Francisco Bay Area* (MTC 2009). It is listed as RTP ID No. 22360, "Reconstruct I-80/San Pablo Dam Road Interchange and modify adjacent interchanges." The project is also included in the 2009 TIP (TIP ID No. CC-070035), as "Upgrade and improve interchange including provisions for bicyclists and pedestrians." An amendment to the TIP in 2009 (Revision ID No. CC-070035 in TIP Amendment 09-06) updated the project description and funding to include "and modifying adjacent interchanges" (consistent with the RTP description). The following summarizes the regional transportation planning and conformity approvals related to this project.

MTC initiated its regional conformity analysis for the 2009 TIP in February 2008 with a consultation request to partner agencies, discussing the approach to the air quality assessment. The process included public consultation and was developed in compliance with FHWA regulations and guidance on financial constraint. MTC's evaluation for the 2009 TIP determined that the regional emissions analysis was below the applicable budgets in the SIP. The regional air quality evaluation for the 2009 TIP was submitted to FHWA and FTA in May 28, 2008. The evaluation used the latest available socioeconomic and land use forecasts from Association of Bay Area Governments (ABAG) Projections 2005 and the latest MTC travel demand

model (BAYCAST) (MTC 2008), which are less than five years old. As noted above, the 2009 TIP was approved by FHWA/FTA on November 17, 2008.

Similar to the process described for the TIP, MTC completed a regional conformity analysis for TIP Amendment 09-06 (for the updated project limits and funding). Public and agency consultation on the TIP amendment was completed in February 2009, and it was regionally evaluated consistent with the Federal transportation conformity regulations and MTC's Bay Area Air Quality Conformity Protocol.

The proposed project is fully funded and is in the 2009 RTP, which was found to conform by MTC on April 22, 2009, and FHWA and FTA adopted the air quality conformity finding on May 29, 2009. The project is also included in MTC's financially constrained 2009 TIP, page 252, and TIP Amendment 09-06, page 5 (TIP Revision Summary Report). The MTC TIP was found to conform by FHWA and FTA on November 17, 2008, and TIP Amendment 09-06 was approved by FHWA and FTA on May 29, 2009. The design concept and scope of the proposed project is consistent with the project description in the 2009 RTP, the amended 2009 TIP, and the assumptions in MTC's regional emissions analysis. The project is in conformity with the SIP and will not otherwise interfere with timely implementation of any Transportation Control Measure in the applicable SIP.

2.12.3.3. Evaluation of Potential for Traffic-Related CO Impacts

The CO impacts analysis followed the procedures in *Transportation Project-Level Carbon Monoxide Protocol*, prepared by the University of California, Davis, Institute of Transportation Studies (CO Protocol; Garza, Graney, and Sperling 1998). This protocol applies screening procedures, based on the attainment status of the area in which the project is planned, to evaluate potential CO impacts of the project and assess the need for any further detailed analysis. The project is within a CO maintenance area where continued attainment of the Federal CO standard has been verified. The area is in attainment for the State CO standard. The project is included in a conforming RTP and TIP. Based on the CO Protocol, the screening procedure in "Level 7" was followed to screen the build vs. no build alternatives for the following criteria:

- a. **The project would not significantly increase the percentage of vehicles operating in cold-start mode.** The proposed project includes on-ramps and off-ramps that will be accessed by automobiles that have been traveling along the road network a sufficient amount of time to not be operating in cold-start

mode. The I-80 corridor at San Pablo Dam Road is relatively built out. No new traffic generators are expected to result from the proposed interchange improvements. There would be no expected change in the percentage of cold starts, and the project complies with this criterion (a less than a two percent change in cold starts).

- b. **The project would not significantly increase traffic volumes.** The project would result in a less than five percent change in traffic volumes. Specifically, the project would result in a less than two percent total change of traffic volumes in both eastbound and westbound directions, with the exception of two locations where the total volume change would be three to four percent. The proposed project would maintain or improve levels of service within the study area, and thus there would be no reduction in average speeds.
- c. **The project would not worsen traffic flow.** The project would improve traffic flow through the San Pablo Dam Road Interchange and on I-80. The project would improve traffic flow by adding an auxiliary lane and improving on-ramps and off-ramps, thereby reducing delays that result in queues at the interchange, as well as improving the LOS at the intersections at San Pablo Dam Road on-ramp and off-ramp.

Following the protocol methods, a comparison was also made of the proposed interchange facility with an existing interchange in the same air district, in this case the U.S. Highway 101 (US 101)/Tully Road interchange in San Jose (Table 2.12-2).

The I-80/San Pablo Dam Road Interchange facility carries a similar range of traffic to the comparison location. The project location in Contra Costa County has recorded CO levels well below the CO standard and approximately half the recorded levels of the comparison location. The proposed project is located in an area that continues to meet air quality standards (within a CO maintenance area), and the documentation satisfies the conditions in the CO Protocol supporting a conclusion that there is no reason to expect higher concentrations at the project location than the comparative facility/location. Therefore, the project is not expected to cause any localized exceedances of State or Federal carbon monoxide standards.

Table 2.12-2 Comparison of Project to an Existing Interchange per CO Protocol Criteria

Parameter	I-80/San Pablo Dam Road Interchange Project (from El Portal Drive to McBryde Avenue, Contra Costa) (Build/Project)	US 101/Tully Road Interchange (on US 101 north and south of Tully Road interchange, San Jose) (Existing/Comparison)
Nearest Receptor Distance	Approximately 30–50 feet. Nearest receptors to proposed improvements include residential rear yards at Joel Court, homes along El Portal Drive, and homes on north end of Amador Street.	Approximately 30–50 feet. Nearest receptors appear to be residential rear yards on the northwest, northeast, and southwest sides of the interchange, and rear yards adjacent to southbound US 101.
Roadway Geometry	I-80 = six to eight lanes San Pablo Dam Road = four lanes	US 101 = eight lanes plus collector-distributor roads Tully Road = six lanes
Worst-Case Meteorology	Coastal Valley	Coastal Valley
AADT Mainline Volumes¹	202,000 to 213,000 (I-80 between El Portal Drive and McBryde Avenue)	188,000 to 228,000 (US 101 at Tully Road)
Hot/Cold Starts	50/10	50/10
Percent Heavy Duty Gasoline Trucks²	4.6%	6%
8-Hour Background (CO)³ (2007 highest daily reported)	1.41 ppm (Concord, 2975 Treat Blvd) 1.23 ppm (San Pablo, Rumrill Blvd.)	2.71 ppm (San Jose, Jackson Street)

¹ Source: 2007 Caltrans Traffic and Vehicle Data Systems Unit (<http://www.dot.ca.gov/hq/traffops/saferes/trafdata/2007all.htm>)

² Truck AADT is from 2006 Annual Average Daily Truck Traffic on the California State Highway System (Caltrans 2006a). The component of Heavy Duty Gasoline Trucks as part of the truck count is not available; the value listed represents all trucks, of which a portion would be HDGT. The same data source was used for both facilities compared in this table.

³ California Air Resources Board (<http://www.arb.ca.gov/adam/cgi-bin/db2www/adamtop4b.d2w/Branch>) for 2007 reporting year.

2.12.3.4. Particulate Matter “Hot Spot” Analysis

A qualitative particulate hot spot analysis or discussion is required for transportation projects that are funded or approved by FHWA or the Federal Transit Administration and are in Federal PM₁₀ nonattainment or maintenance areas. This project is in an area that is in attainment or unclassified for the Federal PM₁₀ and PM_{2.5} standards. Qualitative hot-spot analyses for PM₁₀ and PM_{2.5} are therefore not required for project-level conformity purposes.

2.12.3.5. Ozone

The BAAQMD adopted the 2005 Ozone Strategy for planning and achieving compliance with the Federal and State ozone standards. This project will not interfere with the strategy and will provide transportation benefits that reduce pollutant emissions, including precursors to the formation of ozone, by improving traffic operations and efficiency. This project is included in the Bay Area region's RTP (MTC 2009), which has undergone regional evaluation for conformity with Federal air quality standards, including ozone. In addition, the modified project design is in the RTP and TIP, as discussed previously. The project also includes pedestrian and bicycle access improvement, which are measures that are consistent with the 2005 Ozone Strategy.

2.12.3.6. Mobile Source Air Toxics

In addition to the criteria air pollutants for which standards exist, the USEPA also regulates air toxics. Most air toxics originate from human-made sources, including on-road mobile sources. Mobile source air toxics (MSATs) are a subset of the air toxics defined by the Clean Air Act. Some toxic compounds are present in fuel and are emitted to the air when the fuel evaporates or passes through the engine unburned. Other toxics are emitted from the incomplete combustion of fuels or as secondary combustion products. Metal air toxics also result from engine wear or from impurities in oil or gasoline.

This section includes a basic analysis of the likely MSAT emission impacts of the proposed project. Available technical tools do not enable prediction of project-specific health impacts of the emission changes associated with this project. Due to these limitations, the following discussion is included in accordance with Council on Environmental Quality regulations (40 Code of Federal Regulations 1502.22[b]).

Evaluating the environmental and health impacts from MSATs on a proposed highway project requires several key elements, including emissions modeling; dispersion modeling to estimate ambient concentrations resulting from the estimated emissions; exposure modeling to estimate human exposure to the estimated concentrations; and final determination of health impacts based on the estimated exposure. Each of these steps is encumbered by technical shortcomings or uncertain science that prevents a

more complete determination of the MSAT health impacts of this project. Detail on these limitations is provided in FHWA guidance on air toxic analysis.¹⁰

As discussed above, technical shortcomings of emissions and dispersion models and uncertain science with respect to health effects prevent meaningful or reliable estimates of MSAT emissions and effects of this project. However, even though no reliable methods exist that accurately estimate the health impacts of MSATs at the project level, it is possible to qualitatively assess the levels of future MSAT emissions under the project. Although a qualitative analysis cannot identify and measure health impacts from MSATs, it can provide a basis for identifying and comparing the potential differences among MSAT emissions, if any, from the various alternatives. The qualitative assessment presented below is derived in part from a study conducted by the FHWA entitled “A Methodology for Evaluating Mobile Source Air Toxic Emissions Among Transportation Project Alternatives” (FHWA 2006).

For each alternative considered in this IS/EA, the amount of MSATs emitted would be proportional to the vehicle miles traveled (VMT), assuming that other variables such as fleet mix are the same for each alternative. The VMTs estimated for the build alternatives are slightly higher than those for the No Build Alternative, because the additional capacity increases the efficiency of the roadway and attracts rerouted trips from elsewhere in the transportation network. This increase in VMT would lead to higher MSAT emissions for the action alternative along the highway corridor, along with a corresponding decrease in MSAT emissions along the parallel routes. The emissions increase is offset somewhat by lower MSAT emission rates due to increased speeds; according to USEPA’s MOBILE6 emissions model, emissions of all of the priority MSATs except for diesel particulate matter decrease as speed increases. The extent to which these speed-related emissions decreases will offset VMT-related emissions increases cannot be reliably projected due to the inherent deficiencies of technical models.

Because the estimated VMT under each alternative is nearly the same (varying by less than four percent during peak hours), no appreciable difference in overall MSAT emissions is expected among the alternatives. Also, regardless of the alternative chosen, emissions will likely be lower than present levels in the design year as a result of USEPA’s national control programs that are projected to reduce MSAT emissions by 57 to 87 percent between 2000 and 2020. Local conditions may differ

¹⁰ FHWA Guidance on Air Toxic Analysis in NEPA Documents (2006), URL: www.fhwa.dot.gov/environment/airtoxic/020306guidmem.htm

from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the USEPA-projected reductions is so great (even after accounting for VMT growth) that MSAT emissions in the study area are likely to be lower in the future in nearly all cases.

The additional travel lanes contemplated as part of the build alternatives would move some traffic closer to nearby homes and businesses; therefore, the build alternatives may have localized areas where ambient concentrations of MSATs could be higher than those of the No Build Alternative. The localized increases in MSAT concentrations could occur nearest the proposed auxiliary lane (southbound I-80 between El Portal Drive and San Pablo Dam Road) and the proposed new frontage road (between San Pablo Dam Road and McBryde Avenue). However, as discussed above, the magnitude and the duration of these potential increases compared to the No Build Alternative cannot be accurately quantified due to the inherent deficiencies of current models. In sum, when a highway is modified and, as a result, moves closer to receptors, the localized level of MSAT emissions for the Build Alternative could be higher relative to the No Build Alternative, but this could be offset due to increases in speeds and reductions in congestion (which are associated with lower MSAT emissions). Also, MSATs would be lower in other locations when the proposed project attracts rerouted trips from elsewhere in the transportation network. However, on a regional basis, USEPA's vehicle and fuel regulations, coupled with fleet turnover, will over time cause substantial reductions that, in almost all cases, will cause regionwide MSAT levels to be significantly lower than today.

2.12.3.7. Naturally Occurring Asbestos and Structural Asbestos

In late 2007, two borings drilled to characterize subsurface conditions for the foundations of the proposed San Pablo Dam Road Overcrossing encountered serpentinite rock fragments (URS 2008f). A geotechnical boring drilled between I-80 and the eastbound on-ramp from San Pablo Dam Road also encountered serpentinite, as described in Section 2.10. Serpentinite rock is associated with naturally occurring asbestos. The project area is not within a mapped area of naturally occurring asbestos (California Geological Survey 2000), and laboratory analysis of the serpentinite from the 2007 borings did not detect asbestos.

If serpentinite or other ultramafic rocks are present in project construction areas, a minor potential exists for subsurface excavation to result in the release of asbestos fibers from rocks into the air. The release of asbestos fibers could pose a potential

public health hazard, depending on the concentration, duration of exposure, and physical characteristics of the asbestos fibers.

The project would acquire and remove some existing residential and commercial structures within the proposed right-of-way. Structures may contain asbestos in building materials, but this cannot be determined until right-of-way acquisition. Exposure to airborne contaminants from asbestos materials during demolition could affect safety and health.

2.12.3.8. Construction Impacts

Construction activities associated with the proposed project would generate emissions of criteria pollutants throughout the construction period, estimated at two years. Because the overall construction period is less than five years and the area is in attainment or is unclassified for Federal particulate matter standards, construction-related emissions were not evaluated in a hot-spot analysis. The following is a qualitative description of the range of potential construction emissions.

During construction, short-term degradation of air quality may occur due to the release of particulate emissions (airborne dust) generated by excavation, grading, hauling, and various other activities. Emissions from construction equipment also are anticipated and would include CO, nitrogen oxides (NO_x), volatile organic compounds (VOCs), directly emitted particulate matter (PM₁₀ and PM_{2.5}), and toxic air contaminants such as diesel exhaust particulate matter. Ozone is a regional pollutant that is derived from NO_x and VOCs in the presence of sunlight and heat.

Site preparation and roadway construction would involve clearing, cut-and-fill activities, grading, removing or improving existing roadways, and paving roadway surfaces. Construction-related effects on air quality from most highway projects would be greatest during the site preparation phase because most engine emissions are associated with the excavation, handling, and transport of soils to and from the site. If not properly controlled, these activities would temporarily generate PM₁₀, PM_{2.5}, and small amounts of CO, SO₂, NO_x, and VOCs. Sources of fugitive dust would include disturbed soils at the construction site and trucks carrying uncovered loads of soils. Unless properly controlled, vehicles leaving the site would deposit mud on local streets, which could be an additional source of airborne dust after it dries. PM₁₀ emissions would vary from day to day, depending on the nature and magnitude of construction activity and local weather conditions. PM₁₀ emissions would depend on soil moisture, silt content of soil, wind speed, and the amount of equipment

operating. Larger dust particles would settle near the source, while fine particles would be dispersed over greater distances from the construction site.

Construction activities for large development projects are estimated by the U.S. Environmental Protection Agency (USEPA) to add 1.09 metric tons (1.2 tons) of fugitive dust per acre of soil disturbed per month of activity. If water or other soil stabilizers are used to control dust, the emissions can be reduced by up to 50 percent. Caltrans' Standard Specifications (Section 10) pertaining to dust minimization requirements requires use of water or dust palliative compounds and will reduce potential fugitive dust emissions during construction.

In addition to dust-related PM₁₀ emissions, heavy trucks and construction equipment powered by gasoline and diesel engines would generate CO, SO₂, NO_x, VOCs and some soot particulate (PM₁₀ and PM_{2.5}) in exhaust emissions. If construction activities were to increase traffic congestion in the area, CO and other emissions from traffic would increase slightly while those vehicles are delayed. These emissions would be temporary and limited to the immediate area surrounding the construction site.

SO₂ is generated by oxidation during combustion of organic sulfur compounds contained in diesel fuel. Off-road diesel fuel meeting Federal Standards can contain up to 5,000 parts per million (ppm) of sulfur, whereas on-road diesel is restricted to less than 15 ppm of sulfur. However, under State law and California Air Resources Board regulations, off-road diesel fuel used in California must meet the same sulfur and other standards as on-road diesel fuel, so SO₂-related issues due to diesel exhaust will be minimal. Some construction activities, particularly asphalt paving, would result in short-term odors in the immediate area of each paving site(s). Such odors would be quickly dispersed below detectable thresholds as distance from the site(s) increases.

2.12.4. Avoidance, Minimization, and/or Mitigation Measures

Project impacts would be construction-related. Implementation of the following measures will reduce any air quality impacts resulting from construction activities:

- The construction contractor will comply with Caltrans' Standard Specifications Section 7-1.01F and Section 10 of Caltrans' Standard Specifications (1999).
 - Section 7, "Legal Relations and Responsibility," addresses the contractor's responsibility on many items of concern, such as air pollution; protection of lakes, streams, reservoirs, and other water bodies; use of pesticides;

safety; sanitation; and convenience of the public; and damage or injury to any person or property as a result of any construction operation. Section 7-1.01F specifically requires compliance by the contractor with all applicable laws and regulations related to air quality, including air pollution control district and air quality management district regulations and local ordinances.

- Section 10 is directed at controlling dust. If dust palliative materials other than water are to be used, material specifications are contained in Section 18.
- Water or dust palliative will be applied to the site and equipment as frequently as necessary to control fugitive dust emissions.
- Soil binder will be spread on any unpaved roads used for construction purposes and on all project construction parking areas.
- Trucks will be washed off as they leave the right-of-way as necessary to control fugitive dust emissions.
- Construction equipment and vehicles will be properly tuned and maintained. Low-sulfur fuel will be used in all construction equipment as provided in California Code of Regulations Title 17, Section 93114.
- Develop a dust control plan documenting sprinkling, temporary paving, speed limits, and expedited revegetation of disturbed slopes as needed to minimize construction impacts to existing communities.
- Locate equipment and materials storage sites as far away from residential and park uses as practical. Keep construction areas clean and orderly.
- Prohibit construction activities involving extended idling of diesel equipment at sensitive land uses such as residents and schools.
- Use track-out reduction measures such as gravel pads at project access points to minimize dust and mud deposits on roads affected by construction traffic.
- Cover all transported loads of soils and wet materials prior to transport, or provide adequate freeboard (space from the top of the material to the top of the truck) to reduce PM_{10} and deposition of particulate during transportation.
- Remove dust and mud that are deposited on paved, public roads due to construction activity and traffic to decrease particulate matter.
- To the extent feasible, route and schedule construction traffic to reduce congestion and related air quality impacts caused by idling vehicles along local roads during peak travel times.
- Install mulch or plant vegetation as soon as practical after grading to reduce windblown particulate in the area.

The following technologies can control or reduce diesel engine emissions related to construction activities and equipment. They are to be considered for requirement by the construction contractor, as applicable to the project equipment and construction activities:

- Catalyzed converter/muffler;
- Diesel particulate filter and particulate filter/catalyst;
- Crankcase filtration system;
- Oxidation catalyst; and
- Limit traffic speeds on unpaved roads to 15 miles per hour.

In addition, the following actions can help mitigate pollutant emissions in construction equipment exhaust by requiring:

- Use ultra-low-sulfur fuel;
- Use biodiesel fuel;
- Use fuel additives, including catalysts and cetane enhancers;
- Keep engines properly tuned;
- Limit idling; and
- Avoid unnecessary concurrent use of equipment.

To avoid or minimize potential impacts from naturally occurring asbestos and structural asbestos, the following measures would be implemented:

- Foundation locations for project structures will be investigated for the presence of naturally occurring asbestos during final project design.
- Existing structures that will be removed or modified by the project will be tested for the presence of asbestos-containing materials. If present, these materials will be handled and disposed accordingly.

2.13. Noise

The following summarizes the *Noise Study Report* (Illingworth & Rodkin 2009).

2.13.1. Regulatory Setting

The National Environmental Policy Act (NEPA) of 1969 and the California Environmental Quality Act (CEQA) provide the broad basis for analyzing and abating highway traffic noise effects. The intent of these laws is to promote the

general welfare and to foster a healthy environment. The requirements for noise analysis and consideration of noise abatement and/or mitigation, however, differ between NEPA and CEQA.

2.13.1.1. California Environmental Quality Act

CEQA requires a strictly baseline versus build analysis to assess whether a proposed project will have a noise impact. If a proposed project is determined to have a significant noise impact under CEQA, then CEQA dictates that mitigation measures must be incorporated into the project unless such measures are not feasible.

2.13.1.2. National Environmental Policy Act and 23 CFR 772

For highway transportation projects with FHWA (and the Department, as assigned) involvement, the Federal-Aid Highway Act of 1970 and the associated implementing regulations (23 CFR 772) govern the analysis and abatement of traffic noise impacts. The regulations require that potential noise impacts in areas of frequent human use be identified during the planning and design of a highway project. The regulations contain noise abatement criteria (NAC) that are used to determine when a noise impact would occur. The NAC differ depending on the type of land use under analysis. For example, the NAC for residences (67 dBA) is lower than the NAC for commercial areas (72 dBA). Table 2.13-1 lists the noise abatement criteria for use in the NEPA 23 CFR 772 analysis.

Table 2.13-1 Federal Noise Abatement Criteria

Activity Category	Noise Abatement Criteria, Hourly A- Weighted Noise Level, dBA $L_{eq}(h)$ ^{1,2}	Description of Activities
A	57 Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose
B	67 Exterior	Picnic areas, recreation areas, playgrounds, active sport areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	72 Exterior	Developed lands, properties, or activities not included in Categories A or B above
D	–	Undeveloped lands.
E	52 Interior	Residence, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums

¹ Noisiest hour is expressed as the energy average of the A-weighted noise level occurring during a one-hour period, or $L_{eq}(h)$.

² Note that criteria is applied as 'approach or exceed' the thresholds, which has been defined as one dBA. For Category B, the "approaching the NAC" is therefore 66 dBA, as applied in this study.

Figure 2.13-1 lists the noise levels of common activities to enable readers to compare the actual and predicted highway noise levels discussed in this section with common activities.

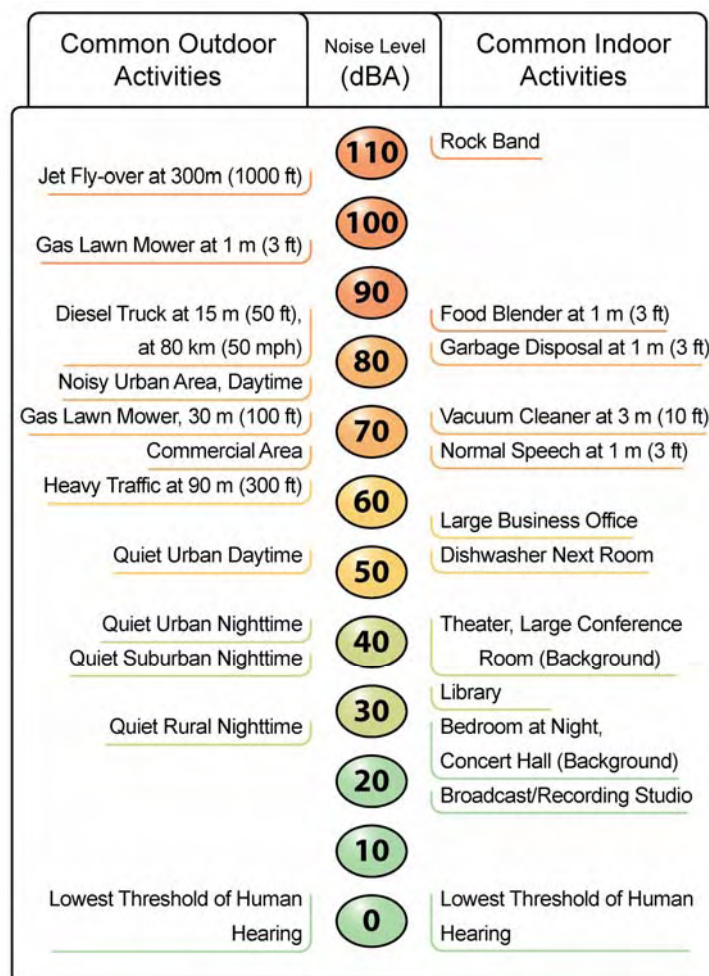


Figure 2.13-1 Noise Levels of Common Activities

In accordance with the Department's *Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects, August 2006*, a noise impact occurs when the future noise level with the project results in a substantial increase in noise level (defined as a 12 dBA or more increase) or when the future noise level with the project approaches or exceeds the NAC. Approaching the NAC is defined as coming within one dBA of the NAC.

If it is determined that the project will have noise impacts, then potential abatement measures must be considered. Noise abatement measures that are determined to be

reasonable and feasible at the time of final design are incorporated into the project plans and specifications. This document discusses noise abatement measures that would likely be incorporated in the project.

The Department's *Traffic Noise Analysis Protocol* sets forth the criteria for determining when an abatement measure is reasonable and feasible. Feasibility of noise abatement is basically an engineering concern. A minimum five dBA reduction in the future noise level must be achieved for an abatement measure to be considered feasible. Other considerations include topography, access requirements, other noise sources and safety considerations. The reasonableness determination is basically a cost-benefit analysis. Factors used in determining whether a proposed noise abatement measure is reasonable include residents' acceptance, the absolute noise level, build versus existing noise, environmental impacts of abatement, public and local agencies' input, newly constructed development versus development pre-dating 1978, and the cost per benefited residence.

2.13.2. Affected Environment

Noise-sensitive land uses within the project limits are single-family and multi-family residences. Residential land uses are located along portions of both sides of I-80, and previous projects have constructed soundwalls to help reduce existing freeway noise. The following areas have homes and existing soundwalls along or near the freeway:

- **El Portal Drive, west of I-80:** The rear yards of some single-family homes with addresses on Rollingwood Drive, Judith Court, Avon Lane, Glenlock Street, and Arundel Way have rear yards along El Portal Drive. The City of San Pablo is building an 8-foot-high masonry soundwall along the western edge of El Portal Drive. A 16-foot-high masonry soundwall already exists along the edge of the shoulder of I-80 where it parallels El Portal Drive.
- **Ridge Drive and Vale Road, west of I-80:** This hilly area just southwest of St. Joseph Cemetery contains single-family homes. The topography descends steeply to the west of I-80. A home at the end of Ridge Drive is on a steep bluff above and in back of I-80, and several other homes are in a steep ravine area. There are no soundwalls along I-80 in this area.
- **Humboldt Avenue west of I-80, between approximately San Pablo Dam Road and Riverside Avenue:** This area has single- and multi-family homes and apartment buildings. The homes are behind an existing soundwall that extends from the Denny's restaurant on the south side of the interchange to the existing

pedestrian overcrossing at Riverside Avenue. South of the pedestrian overcrossing, one-story buildings for a self-storage business line the west side of I-80 to approximately Wildcat Creek. The self-storage buildings help shield freeway noise at a condominium development to the west of the freeway.

- **Joel Court, west of I-80 to approximately Glenn Avenue (along the existing McBryde Avenue westbound off-ramp):** Single-family homes on the east side of this cul-de-sac have rear yards that face an existing soundwall. I-80 is below the ramp, and hence the existing soundwall is located at the top of a cut slope.
- **Amador Street between approximately Glenn Avenue (near McBryde Avenue) and San Pablo Dam Road, east of I-80:** Single-family homes and Riverside Elementary School line the east side of Amador Street. Amador Street is generally above I-80, and an existing 14-foot-high soundwall is located at the top of the freeway embankment along most of I-80 within this segment. The residential uses on the east side of I-80 and Amador Street extend into the hills above the project area.
- **San Pablo Dam Road to El Portal Drive, east of I-80:** The area between San Pablo Dam Road and the east side of I-80 in this segment is generally undeveloped except for a recreational vehicle storage and sales business. Some residential land uses are located at the northeastern extent of this segment but are well separated from the existing freeway and off-ramps.

The above land uses fall within the definition of activity Category B of the NAC. The definition of approaching the NAC is considered one dBA below the NAC, and therefore 66 dBA is the applicable criteria for evaluating noise abatement for this study. The study area for noise impacts included the land uses adjacent to I-80 and the on-ramps and off-ramps in the project limits. The study area has no Category C land uses that would have frequent human use that would benefit from a lower noise level.

Noise measurements were conducted in May 2008 to determine the existing noise conditions at representative receptor locations in the project area. Both long-term (24 hours) and short-term (one or two 10-minute increments) measurements were collected. Measurements were taken at locations that are primarily affected by traffic noise and consisted of residential yards or positions in adjacent areas considered to be acoustically equivalent to the Category B activity uses. Traffic conditions were also documented during each measurement. The locations of the measurements are shown in the map sheets in Appendix A.

Following established methods for a traffic noise study, the short-term and long-term measurements, together with the measured traffic conditions, vehicle mix, and site-specific geographical information, were then used to determine future noise levels in the project area. Calculated and measured noise levels were compared to assess any differences, to calibrate or validate the Federal Highway Administration's Traffic Noise Model (TNM) for use in determining noise levels with and without the project, and to consider any applicable noise abatement measures.

Existing noise levels were estimated to range from 61 to 68 dBA at 23 representative receptor locations. Fifteen of the locations have estimated levels approaching or exceeding the NAC (i.e., they are already at or above 66 dBA without the project). The locations that may exceed the NAC are discussed in Section 2.13.3.

2.13.3. Environmental Consequences

2.13.3.1. Traffic Noise

The project would require removal and reconstruction of some of the existing soundwalls (or segments of existing soundwalls) within the project limits to accommodate the proposed changes to westbound I-80 and the interchange ramps between El Portal Drive and McBryde Avenue. Specifically, the project would require the following:

- A portion of the existing soundwall on I-80 at the El Portal Drive undercrossing would be removed to accommodate the proposed relocation of the westbound El Portal Drive on-ramp.
- Portions of the existing soundwall between the El Portal Drive undercrossing and the existing El Portal Drive on-ramp must be relocated to allow construction of the westbound auxiliary lane.
- The existing soundwall on westbound I-80 between the San Pablo Dam Road on-ramp and the pedestrian overcrossing must be relocated to accommodate the proposed westbound on-ramp and frontage road construction.
- A portion of the soundwall adjacent to the McBryde Avenue off-ramp would be reconstructed to accommodate the proposed change in height of the frontage road with respect to the existing freeway and soundwall.¹¹

¹¹ The proposed frontage road bridge over Wildcat Creek will be on a higher grade than the existing I-80 roadway and McBryde Avenue off-ramp. The existing soundwall along the right-of-way in this area (at the end of Joel Court) may not be tall enough to break the line of sight between vehicles (especially trucks) and the proposed frontage road.

The project would result in temporary traffic noise increases after the existing soundwalls are removed and before the replacement soundwalls are constructed. The noise increases could be up to 11 dBA. Table 2.13-2 lists the future traffic noise conditions at design year 2035. The “No Build” column in Table 2.13-2 lists future traffic-generated noise levels with all existing soundwalls still in place. The noise levels listed in columns “Alt. 1” and “Alt. 2” of Table 2.13-2 are the predicted future maximum noise levels with the project. The increases are primarily due to the necessary removal of some existing soundwalls during construction (before any of the removed soundwalls are replaced). Future noise levels would be the same with either build alternative.

Table 2.13-2 Loudest Hour Noise Levels and Impacts, $L_{eq}(hr)$ dBA

Receiver ID	No Build (dBA)	Alt. 1 Lanes Added (dBA)	Alt. 2 Tight Diamond (dBA)	Type of Development ¹	Existing Soundwall Shielding?	Noise Increase (dBA)	Approach or Exceeds NAC? ⁵	Number of Units Exceeding NAC
R1	66	73 ⁴	73 ⁴	SFR	Yes ⁴	7 ⁴	Yes	5 SFR
R2	67	77 ^{2,4}	77 ^{2,4}	SFR	Yes ⁴	10 ⁴	Yes	7 SFR
R3	67	78 ^{2,4}	78 ^{2,4}	SFR	Yes ⁴	11 ⁴	Yes	5 SFR
R4	68	78 ^{2,4}	78 ^{2,4}	SFR	Yes ⁴	10 ⁴	Yes	7 SFR
R5	63	63	63	SFR	No	0	No	0
R6	68	78 ^{2,4}	78 ^{2,4}	SFR	Yes ⁴	10 ⁴	Yes	7 SFR
R7	67	75 ^{2,4}	75 ^{2,4}	SFR	Yes ⁴	8 ⁴	Yes	7 SFR
R8	68	72 ⁴	72 ⁴	SFR	Yes ⁴	4 ⁴	Yes	2 SFR
R9	61	65 ⁴	65 ⁴	SFR	Yes ⁴	4	No	0
R10	65	65	65	MFR	No	0	No	0
R11	65	65	65	MH	No	0	No	0
R12	64	65	65	SFR	No	1	No	0
R13	62	63	63	SFR	No	1	No	0
R14	68	69	69	MFR	No	1	Yes	12 MFR
R15	66	66	66	MFR, SFR	Yes	0	Yes	6 MFR, 6 SFR
R16	64	65	65	SFR	Yes	1	No	0
R17	67	68	68	SFR, FU	Yes	1	Yes	7 SFR, 6 FU
R18	65	72 ⁴	72 ⁴	SFR	Yes ⁴	7 ⁴	Yes	6 SFR
R19	64	70 ⁴	70 ⁴	SFR	Yes ⁴	6 ⁴	Yes	9 SFR
R20	65	NA ³	NA ³	SFR	Yes	NA ³	No	0
R21	69	71	71	SFR	Yes	2	Yes	4 SFR
R22	66	68	67	SFR	Yes	1	Yes	3 SFR
R23	65	66	66	SFR	Yes	1	Yes	3 SFR

¹ SFR = single-family residence, MFR = multi-family residence, MH = mobile home, FU = frontage unit

² Possible severe noise impact

³ Project would remove receptor location

⁴ Project would remove existing soundwall; level represents noise after soundwall is removed.

⁵ Locations that approach or exceed the Noise Abatement Criteria require consideration of noise abatement measures. For residential land uses, 67 dBA is the level considered to approach or exceed the NAC.

The worst-case impact from the project would occur during the construction period after portions of some existing soundwalls have been removed and before the abatement measures described in Section 2.13.4 have been installed. The maximum increase would not exceed 12 dBA $L_{eq(hr)}$ and would therefore not be considered a substantial increase based on the Federal criteria.¹² The increase would, however, be an adverse impact. Section 2.13.4 proposes noise abatement measures in accordance with the Department's *Traffic Noise Analysis Protocol* procedures.

The *Traffic Noise Analysis Protocol* states that a traffic noise impact may be considered significant under CEQA if the project is predicted to result in a substantial increase in traffic noise. A substantial noise increase is defined as an increase of 12 dBA $L_{eq(hr)}$ above existing conditions. The results of the traffic noise modeling indicate that the project would typically result in increases of zero to five dBA $L_{eq(hr)}$ throughout the study area. In areas where existing soundwalls would either be partially or completely removed with construction of the project, noise levels are expected to temporarily increase up to 11 dBA until replacement walls can be constructed. The traffic noise impacts of the proposed project are considered less than significant under CEQA because all future predicted increases would be less than 12 dBA $L_{eq(hr)}$ and increases greater than five dBA $L_{eq(hr)}$ would be temporary, until replacement walls are constructed.

2.13.3.2. Construction Noise

Project construction activities that would generate noise include clearing and grubbing, earthwork, paving, and the construction of roadway structures, which could involve pile driving. At times, construction activities could be within 50 feet of noise-sensitive receptors (during soundwall removal and construction). The highest noise levels would result from activities such as pile driving and demolition. Highway construction activities typically take place for relatively short periods of time as construction proceeds along the project's alignment. Construction noise would mostly be of concern in areas where the noise would be concentrated for extended periods of time, where noise levels from individual pieces of equipment are substantially higher than ambient conditions, or when noise-intensive activities such as pile driving or demolition occur during nighttime hours.

Project construction is anticipated to take place during daytime and nighttime hours. During the day, ambient traffic noise levels are on average about 72 dBA $L_{eq(hr)}$ at the

¹² The Federal significance criteria are listed in Caltrans' *Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects*, August 2006.

nearest unshielded locations. The proposed construction activities would generate noise above ambient average daytime traffic noise levels when construction is within approximately 100 feet of sensitive receptors. At night, ambient average traffic noise levels are approximately 69 dBA $L_{eq(hr)}$. Construction activities within about 200 feet of sensitive receptors would generate noise above ambient nighttime traffic noise levels.

The Noise Element of the City of San Pablo General Plan states: “Typically, projects are conditioned upon a guarantee of no work between 9:00 p.m. and 7:00 a.m., weekdays and between 5:00 p.m. and 9:00 a.m., weekends and holidays.” Work within the Caltrans right-of-way is generally not subject to local noise ordinances; however, if work is planned outside of these hours, a special permit from the City of San Pablo may be required.

2.13.4. Avoidance, Minimization, and/or Abatement Measures

Noise abatement measures were evaluated for sensitive land uses (“Category B” in Table 2.13-1) that would approach or exceed the Noise Abatement Criteria. Noise abatement measures identified in the *Traffic Noise Analysis Protocol* include consideration of:

- Avoiding a noise impact by using design alternatives, such as altering the horizontal and vertical alignment of the project;
- Constructing noise barriers;
- Using traffic management measures to regulate types of vehicles and speeds;
- Acquiring property to serve as a buffer zone; and
- Acoustically insulating public use or nonprofit institutional structures.

The primary noise source within the project limits is I-80, and changing the alignment of the freeway or regulating I-80 traffic volumes or speeds is not within the practicable scope of this project. Acquiring property would have additional adverse community impacts. Soundwalls were determined to be more effective and practicable than insulating buildings. Some soundwalls already exist in the project limits and in some cases would only require partial reconstruction to conform to the new right-of-way. Therefore, soundwalls are the preferred noise abatement measure for this project.

The following describes the evaluation and determination for each location where future traffic noise levels would exceed the NAC with the proposed project and with full or partial removal of existing soundwalls. Only areas within the project limits that are predicted to exceed the NAC with future traffic conditions are discussed (Table 2.12-2, “Approach or Exceeds NAC” column). Soundwalls SW1 through SW5 were determined to be feasible based on their predicted effectiveness in reducing traffic noise levels by five dBA or more. Soundwalls SW6 through SW8 would reduce sound levels by less than five dBA and were consequently determined not feasible. The soundwalls studied are shown in Appendix A.

Table 2.13-3 is a summary of soundwall feasibility determinations, including the calculated cost allowance and estimated total cost to construct each wall. As described at the end of Section 2.13.1.2, the decision to implement a proposed noise abatement measure is based on total cost as well as other factors such as acceptance by affected residents, the absolute noise level, noise levels with the project versus existing noise, environmental impacts of abatement, public and local agency input, the presence of newly constructed development versus development pre-dating 1978, and cost per benefited residence. The preliminary decision on soundwalls for this project is also summarized in the Noise Abatement Decision Report (NADR); the findings of the NADR are summarized in the following subsections.

Table 2.13-3 Summary of Soundwall Feasibility and Reasonable Allowances (Alternatives 1 and 2)

Wall ID	Approx. Stationing	Length (feet)	Soundwall Considered	Wall Height (feet)	Noise Reduction (dBA)	Number of Benefited Receivers	Total Reasonable Monetary Allowance	Estimated Construction Cost
SW1	Sta. 10+00 to 30+00	1,900	Height Increase/ Replacement Wall	10	5	9	\$468,000	\$765,000
				12	6	15	\$810,000	\$918,000
				14	5 to 7	19	\$1,154,000	\$1,070,000
				16	6 to 8	19	\$1,168,000	\$1,223,000
SW4	Sta 0+00 to 9+00	900	Height Increase/ Replacement Wall	8	Would be constructed to complete/replace portion of City of San Pablo’s masonry wall along El Portal Drive that would be realigned by the proposed project.			\$294,000
SW2, SW3, SW5	Segments between Sta. 57+00 to 77+00	150 380 560	Replacement Wall Segments	16	5 to 10	38	\$2,198,000	\$716,000

2.13.4.1. Soundwall SW1

Soundwall SW1 would protect land uses from just east of McBryde Avenue to San Pablo Dam Road. Receptors R21, R22, and R23 represent ten single-family homes from the end of the cul-de-sac of Joel Court (south of Wildcat Creek) to the Joel Court/Glenn Avenue intersection. These homes have rear yards along the right-of-way of the existing westbound I-80/McBryde Avenue off-ramp. An existing masonry soundwall at the top of the slope above the off-ramp currently helps shield these homes from freeway and off-ramp traffic noise. Short-term noise measurements taken at the end of Glenn Avenue indicated noise levels of 60 to 61 dBA, and a long-term measurement taken along the McBryde Avenue off-ramp near Wildcat Creek registered a peak of 72 dBA. Existing and future No Build modeled noise levels range from 65 to 69 dBA in the rear yards of homes on Joel Court. No right-of-way would be acquired at any of these homes, but a portion of the existing masonry soundwall just west of San Pablo Creek would require reconstruction to provide line-of-sight protection from vehicles traveling on the proposed frontage road and bridge over Wildcat Creek. Peak noise levels with the project are predicted at 66 to 71 dBA, an increase of one to two decibels.

From Wildcat Creek to west of the existing pedestrian overcrossing, the existing land use is a commercial self-storage business. I-80 has no soundwalls fronting the self-storage buildings. The buildings partially shield a condominium complex west of the storage business. At least a partial acquisition of the self-storage business property would be necessary near the freeway, but this can only be determined during the right-of-way acquisition process. If acquisition only affects a portion of one or more of the buildings and maintains a line of buildings fronting I-80 similar to the existing setting, there should be no discernable change in noise levels. If acquisition requires the removal of one or more entire building, the condominiums west of the self-storage business may experience greater exposure to freeway traffic noise, depending on how many buildings are removed.

East of the self-storage business are single-family and multi-family residences off Riverside Avenue and Humboldt Avenue that are currently protected by a masonry soundwall along the I-80 right-of-way. The project would require removal of the existing soundwall and residences on the east side of Humboldt Avenue and at the east end of Riverside Avenue. A short-term measurement at the end of Riverside Avenue (R20) was 64 dBA, with a predicted 65 dBA future level without the project. Homes along Humboldt Avenue (R18 and R19) have existing and future predicted

levels of 64 and 65 dBA, respectively, without the proposed project. Removal of the soundwall would increase traffic noise levels by six to seven dBA at 15 homes.

With the project (including removal of the existing soundwall between the self-storage business and San Pablo Dam Road, potential removal of entire self-storage buildings, and the elevation of the proposed frontage road near its crossing of Wildcat Creek), remaining residences would experience noise levels that exceed the NAC. A 14- to 16-foot-high soundwall would achieve at least a five dBA reduction at receptors R18 through R22. Increasing the height of the existing wall west of R22 would not achieve a five dBA reduction because homes are more effectively shielded by existing topography (the slope of the freeway below the existing McBryde Avenue off-ramp and proposed frontage road) and the existing soundwall. The reasonable cost allowance for soundwall SW1 was estimated at \$1,168,000, and the estimated construction cost was up to \$1,223,000, depending on the height of the wall (Table 2.13-3).

2.13.4.2. Soundwall Segments SW2, SW3, and SW5 on I-80 and Extension of El Portal Drive Masonry Wall (SW4)

Soundwall segments SW2, SW3, and SW5 would replace portions of an existing soundwall that must be relocated for the project along westbound I-80 between the existing and proposed El Portal Drive on-ramps. SW4 would extend a city-built eight-foot-high masonry soundwall along the rear yard property lines along El Portal Drive east of Glenlock Street, protecting homes with addresses on Judith Court and Rollingwood Drive.

Soundwalls SW2, SW3, and SW5 together with the existing segments of the I-80 soundwall that can be saved would provide a continuous replacement for the existing soundwall that protects homes with rear yards bordering El Portal Drive near westbound I-80 within the project limits. Short-term noise levels were measured at 65 to 68 dBA along El Portal Drive, and a long-term measurement near the existing El Portal Drive westbound on-ramp measured a peak of 68 dBA. Modeled noise levels for the No Build Alternative ranged from 66 to 68 dBA at receptors representing the rear yards of homes along El Portal Drive. Future noise levels were modeled with the existing I-80 soundwall segments removed to accommodate project construction and ranged from 72 to 78 dBA, a four to 11 dBA increase. Five of the modeled locations had noise levels of 75 dBA or higher, representing a “severe” noise level under the Federal criteria but less than a “substantial increase” (12 dBA or more). These effects occur primarily because the project would have to remove the existing soundwall, but

the increase in traffic on El Portal Drive with the relocation of the freeway on-ramp would also contribute to the higher noise level.

A 16-foot-high soundwall along I-80 would provide a five dBA or more reduction at 19 single-family homes (up to six dBA). The I-80 soundwall combined with an eight-foot-high soundwall along El Portal Drive provides a five dBA or more reduction at an estimated 38 residences, with a maximum reduction of ten dBA. The City of San Pablo plans to construct the eight-foot-high soundwall along El Portal Drive to approximately 200 feet east of Glenlock Street. SW-4 would extend this eight-foot-high soundwall to the east end of the project, which would help shield the remaining home on Rollingwood Drive. (The project would remove and relocate two residences on Rollingwood Drive to accommodate the realignment of El Portal Drive to the intersection at the freeway ramps). The reasonable cost allowance calculated for SW2, SW3, SW4, and SW5 is \$2,198,000, and would effectively protect the 38 homes and abate the severe noise level impacts. The estimated cost for these walls is \$716,000.

2.13.4.3. Land Uses Studied That Do Not Exceed the NAC, and Soundwalls Studied But Determined Not Feasible

The noise study considered and evaluated all residential land uses within the project limits. Some land uses did not qualify for further evaluation either because measured and predicted future noise levels would not exceed the NAC listed in Table 2.13-1, or because an evaluated soundwall would not achieve the minimum five dBA reduction necessary to be considered feasible. The following locations were measured and modeled and the sound levels would not exceed the NAC:

- Homes accessed from or at the end of Ridge Drive and Vale Road, west of I-80, southwest of St. Joseph Cemetery; and
- Residences off Morrow Drive and San Pablo Dam Road, east of I-80 and the existing I-80/San Pablo Dam Road Interchange.

At the following segments, predicted future noise levels would exceed the NAC but construction of a soundwall would not achieve a minimum five dBA noise level reduction:

- **Along Amador Street between McBryde Avenue and Alpine Drive.** An existing soundwall along the west side of Amador Street already helps reduce freeway noise to homes on the east side of the street. Increasing the height of this

14-foot-high soundwall was studied and was found to achieve no more than a one dBA reduction in noise levels along most of its length.

- **Along Amador Street from Alpine Drive to the San Pablo Dam Road intersection.** Extending the existing soundwall would reduce traffic noise levels by three dBA or less.
- **Along westbound I-80, from the El Portal Drive undercrossing to the proposed westbound on-ramp merge.** Retaining a short segment of soundwall along westbound I-80, from the El Portal Drive undercrossing to the proposed westbound on-ramp merge. The proposed relocation of the westbound I-80/El Portal on-ramp would require removal of the existing soundwall, but construction of a new soundwall along the edge of I-80 at this eastern extent of the project limits is limited because of the need to allow for the proposed on-ramp to merge with the traffic lanes, and allow for adequate sight distance for drivers on the on-ramp to adequately see on-coming westbound I-80 traffic. Placement of this barrier would only reduce noise levels by up to one dBA. Extension of the 8-foot masonry wall will achieve a five dBA reduction along El Portal Drive at the residence evaluated in this area, and therefore the extension of the El Portal Drive wall was included in the project.

2.13.4.4. Noise Abatement Summary

Based on the studies completed to date, the Department intends to incorporate noise abatement in the form of soundwalls in the following locations:

- Along westbound I-80 from just west of Wildcat Creek to San Pablo Dam Road (SW1);
- Along segments between the existing I-80 westbound El Portal Drive on-ramp and the proposed relocated westbound El Portal Drive on-ramp (SW2, SW3, and SW5); and
- As an extension of the 8-foot-high masonry soundwall that the City of San Pablo plans to construction along El Portal Drive (SW4).

The respective lengths and average heights of these soundwalls are listed in Table 2.13-3. Calculations based on preliminary design data indicate that the soundwalls would reduce noise levels by five to ten dBA for 60 residences at a total construction cost of \$2,233,000 (assuming a 16-foot-high soundwall SW1). If, during final design, conditions have substantially changed, noise abatement may not be necessary. The final decision on noise abatement will be made upon completion of the project design and the public involvement processes.

2.13.4.5. Construction Noise Abatement

Noise generated while constructing the proposed project could at times reach levels higher than the existing traffic noise. The increase in noise from construction activities would be temporary and will be reasonably minimized by implementing provisions in Section 7-1.01I, “Sound Control Requirements,” of the Caltrans Standard Specifications and the following abatement measures:

- Consider construction of the soundwall replacements along westbound I-80 and San Pablo Dam Road as early as possible to minimize noise exposure to homes.
- Equip all internal combustion engine driven equipment with intake and exhaust mufflers that are in good condition and appropriate for the equipment.
- Prohibit unnecessary idling of internal combustion engines within 100 feet of residences.
- Avoid staging of construction equipment within 200 feet of residences and locate all stationary noise-generating construction equipment, such as air compressors and portable power generators, as far practical from noise-sensitive residences.
- Require all construction equipment to conform to Section 7-1.01I, Sound Control Requirements of the latest Standard Specifications.
- Avoid nighttime construction work when feasible.
- Limit demolition and pile-driving activities to daytime hours only. If nighttime work is required, implement a construction noise-monitoring program and provide additional mitigation as necessary (in the form of noise control blankets or other temporary noise barriers, etc.) for affected receptors.

Biological Environment

The following sections are summarized from the Natural Environment Study (URS 2008i), Biological Assessment (URS 2008j), and Fisheries Biological Assessment (URS 2008k) for the proposed project.

2.14. Natural Communities

The focus of this section is on biological communities, not individual plant or animal species. This section also includes information on wildlife corridors, fish passage, and habitat fragmentation. Wildlife corridors are areas of habitat used by wildlife for seasonal or daily migration. Habitat fragmentation involves the potential for dividing sensitive habitat and thereby lessening its biological value.

Wetlands and other waters of the United States are discussed in Section 2.15. Habitat areas that have been designated as critical habitat under the Federal Endangered Species Act are discussed in Section 2.18.

2.14.1. Affected Environment

The land surrounding the project limits is largely a developed urban area with a mixture of commercial and residential structures. The Alvarado District of Wildcat Canyon Regional Park is located about 1,000 feet east of the project area between San Pablo Dam Road and McBryde Avenue. Vegetation communities consist of ornamental or nonnative plants, and riparian scrub is present along the banks of Wildcat, Garrity, and San Pablo creeks.

Where both Wildcat and San Pablo creeks flow through urban San Pablo at I-80 and west of I-80 in the biological study area (BSA),¹³ creek banks tend to be steep, high (approximately 15 to 20 feet), and heavily overgrown with English ivy (*Hedera helix*). Many culverts are present and range in length from a few feet to several city blocks. Creeks are heavily littered with garbage and large items such as shopping carts, bicycles, and mattresses. Many culverts show evidence of homeless encampments.

¹³ The BSA consists of the existing State right-of-way in the project limits and additional right-to-way to be acquired for the proposed project. To assess effects to California red-legged frog habitat, the study area included creek drainages for 1 mile outside of the project limits.

The riparian areas along the creeks provide wildlife habitat within this urbanized area. The vegetation provides nesting habitat to migratory songbirds such as warblers, vireos, grosbeaks, and flycatchers. Riparian areas provide foraging habitat for many species of reptiles and amphibians and act as wildlife migration and movement corridors. The canopy and subcanopy layers provide shade and protection for San Pablo and Wildcat creeks. No regional or habitat conservation plans or programs apply to the project area.

2.14.2. Environmental Consequences

The project would require removal of vegetation adjacent to westbound I-80 for the construction of a new auxiliary lane between El Portal Drive and San Pablo Dam Road, as well as a frontage road between San Pablo Dam Road and McBryde Avenue. This would affect mostly nonnative grasses and shrubs. Mature eucalyptus trees in the vicinity of the west side of the El Portal Drive undercrossing of I-80 would also be removed. Although project construction would largely avoid impacts to stream corridors, which are the most sensitive habitats in the project area, construction would affect the top of the banks of Wildcat Creek. No work would take place within the banks of Wildcat Creek or the creek itself. San Pablo Creek and its banks would be entirely avoided by the project. The proposed bridge over Wildcat Creek would be constructed at the top of the creek bank. No piers or footings would be placed within the creek but abutments would be installed at the top and outside of the creek banks. No bridge construction would take place within the creek bed or bank, and existing wingwalls would remain unaffected. Installation of the abutments would require removal of upland vegetation above the culvert wingwalls in the construction area.

2.14.3. Avoidance, Minimization, and/or Mitigation Measures

No construction would take place in either San Pablo or Wildcat creeks. No impacts would occur to any natural biological communities, and no further avoidance measures are necessary.

2.15. Wetlands and Other Waters of the United States

2.15.1. Regulatory Setting

Wetlands and other waters are protected under a number of laws and regulations. At the Federal level, the CWA (33 USC 1344) is the primary law regulating wetlands and waters. The CWA regulates the discharge of dredged or fill material into waters of the United States, including wetlands. Other waters of the United States include navigable waters, interstate waters, territorial seas and other waters that may be used in interstate or foreign commerce. To classify wetlands for the purposes of the CWA, a three-parameter approach is used that includes the presence of hydrophytic (water-loving) vegetation, wetland hydrology, and hydric soils (soils subject to saturation/inundation). All three parameters must be present, under normal circumstances, for an area to be designated as a jurisdictional wetland under the CWA.

Section 404 of the CWA establishes a regulatory program that provides that no discharge of dredged or fill material can be permitted if a practicable alternative exists that is less damaging to the aquatic environment or if the nation's waters would be significantly degraded. The Section 404 permit program is run by the USACE with oversight by the USEPA.

Executive Order 11990 also regulates the activities of Federal agencies with regard to wetlands. Essentially, this executive order states that a Federal agency such as FHWA cannot undertake or provide assistance for new construction located in wetlands unless the head of the agency finds: (1) that there is no practicable alternative to the construction and (2) the proposed project includes all practicable measures to minimize harm.

At the State level, wetlands and waters are regulated primarily by the California Department of Fish and Game (CDFG) and the RWQCBs. In certain circumstances, the California Coastal Commission (or Bay Conservation and Development Commission) may also be involved. Sections 1600–1607 of the California Fish and Game Code require any agency that proposes a project that will substantially divert or obstruct the natural flow of or substantially change the bed or bank of a river, stream, or lake to notify the CDFG before beginning construction. If the CDFG determines that the project may substantially and adversely affect fish or wildlife resources, a Lake or Streambed Alteration Agreement will be required. CDFG jurisdictional limits

are usually defined by the tops of the stream or lake banks, or the outer edge of riparian vegetation, whichever is wider. Wetlands under jurisdiction of the USACE may or may not be included in the area covered by a Streambed Alteration Agreement obtained from the CDFG.

The RWQCBs were established under the Porter-Cologne Water Quality Control Act to oversee water quality. The RWQCBs also issues water quality certifications in compliance with Section 401 of the CWA. See Section 2.9 for additional details.

2.15.2. Affected Environment

San Pablo and Wildcat creeks cross beneath I-80 in culverts in the project area. San Pablo Creek, a perennial stream, crosses under I-80 at the existing westbound on-ramp from El Portal Drive. Wildcat Creek crosses under I-80 in a 260-foot-long concrete double-box culvert between San Pablo Dam Road and just east of McBryde Avenue. Wildcat Creek has been ephemeral since the creation of Lake Anza in 1937–38.

An unnamed drainage crosses I-80 in a 36-inch concrete culvert at approximately Station 40+70. The culvert would be extended to accommodate the freeway widening. According to the USGS, the drainage is not a perennial stream (WRECO 2008).

2.15.3. Environmental Consequences

The El Portal Drive on-ramp over San Pablo Creek would be closed as part of the proposed project. This would entail removal of the existing road surface. No work would take place in the stream or its banks. The existing culvert would not be altered.

The proposed new frontage road connecting to McBryde Avenue would cross Wildcat Creek on a new bridge adjacent to the existing I-80 culvert. This bridge has been included in the project specifically to avoid having to extend the existing culvert and work in the creek. The bridge would span the creek, which is bordered by high concrete wingwalls downstream of the culvert. No construction activities would take place below the top of the existing wingwalls. No work would take place in the creek.

No impacts to any jurisdictional waters regulated by the USACE under Section 404 of the Federal CWA would occur. The project does not appear to meet the definition for either a “reporting” or “nonreporting” authorization by the USACE because the project would avoid the creeks.

2.15.4. Avoidance, Minimization, and/or Mitigation Measures

The portion of Wildcat Creek below the existing wingwalls will be designated as an environmentally sensitive area (ESA) and flagged to exclude construction workers and equipment. Best management practices (BMPs) will be implemented during bridge construction to prevent stormwater runoff from the construction area from entering Wildcat Creek. San Pablo Creek will be avoided and will also be designated as an ESA.

2.16. Plant Species

2.16.1. Regulatory Setting

The U.S. Fish and Wildlife Service (USFWS) and CDFG share regulatory responsibility for the protection of special-status plant species. Special-status species are selected for protection because they are rare and/or subject to population and habitat declines. Special status is a general term for species that are afforded varying levels of regulatory protection. The highest level of protection is given to threatened and endangered species; these are species that are formally listed or proposed for listing as endangered or threatened under the Federal Endangered Species Act (FESA) and/or the California Endangered Species Act (CESA). Section 2.18 presents detailed information about threatened and endangered species.

This section discusses all the other special-status plant species, including CDFG fully protected species and species of special concern, USFWS candidate species, and nonlisted California Native Plant Society (CNPS) rare and endangered plants.

The regulatory requirements for FESA can be found at 16 USC Section 1531, et seq. See also 50 CFR Part 402. The regulatory requirements for CESA can be found at California Fish and Game Code, Section 2050, et seq. Department projects are also subject to the Native Plant Protection Act (California Fish and Game Code Sections 1900–1913) and CEQA (PRC Sections 2100–21177).

2.16.2. Affected Environment

Lands in the project area are highly disturbed, generally urbanized, and dominated by nonnative or landscape species. At the rural/suburban interface near the east side of I-80, single-family homes with large gardens, ornamental vegetation, and small agricultural plots such as a small vineyard back onto the creeks. Where San Pablo and Wildcat creeks cross I-80 in the project limits, riparian shrub areas are present along

their steep banks, and the creeks are overgrown with English ivy. Above the creek banks is upland habitat heavily overgrown with Himalayan blackberry (*Rubus discolor*). No special-status plant species were observed during several surveys and visual assessments of the study area in 2007 and 2008. Based on the disturbed condition of the project vicinity, it was determined that no special-status plant species occur in the project limits.

2.16.3. Environmental Consequences

No natural plant communities of special concern exist within the study area. No adverse impacts would occur to special-status plant species.

2.16.4. Avoidance, Minimization, and/or Mitigation Measures

No avoidance and minimization measures are necessary.

2.17. Animal Species

2.17.1. Regulatory Setting

Many State and Federal laws regulate impacts to wildlife. The USFWS, the National Marine Fisheries Service (NOAA Fisheries), and the CDFG are responsible for implementing these laws. This section discusses potential impacts and permit requirements associated with wildlife not listed or proposed for listing under CESA or FESA. Species listed or proposed for listing as threatened or endangered are discussed in Section 2.18. All other special-status animal species are discussed here, including CDFG fully protected species and species of special concern, and USFWS or NOAA Fisheries candidate species.

Federal laws and regulations pertaining to wildlife include the following:

- National Environmental Policy Act;
- Migratory Bird Treaty Act; and
- Fish and Wildlife Coordination Act.

State laws and regulations pertaining to wildlife include the following:

- California Environmental Quality Act;
- Sections 1600–1603 of the Fish and Game Code; and
- Section 4150 and 4152 of the Fish and Game Code.

2.17.2. Affected Environment

The riparian corridors along San Pablo and Wildcat creeks provide some wildlife habitat and serve as migration and movement corridors. The vegetation provides nesting habitat to migratory songbirds and foraging habitat for many species of reptiles and amphibians. The canopy and subcanopy layers provide shade and protection for water features and their aquatic inhabitants. Species that are expected to frequent this community include the common garter snake (*Thamnophis* sp.), Pacific tree frog (*Hyla regilla*), western toad (*Bufo boreas*), and American crow (*Corvus brachyrhynchos*) in addition to the raccoon, striped skunk, and opossum.

The trees and shrubs in the BSA may provide nesting, foraging, and resting habitat for a variety of bird species, including raptors and passerine birds. Small mammals, such as mice (*Peromyscus* sp.), raccoons (*Procyon lotor*), striped skunks (*Mephitis mephitis*), and opossums (*Didelphis virginiana*) may also be present. Mallard ducks (*Anas platyrhynchos*) were observed during one of the field surveys (February 20, 2007).

The Migratory Bird Treaty Act makes it unlawful at any time, by any means, or in any manner, to pursue, hunt, take, capture, or kill migratory birds. The law applies to the removal of nests (such as swallow nests on bridges) occupied by migratory birds during the breeding season. The trees and shrubs in the BSA may provide nesting, foraging, and resting habitat for a variety of bird species, including raptors and passerine birds (perching birds, including song birds, many of which are migratory).

Essential Fish Habitat (EFH) includes waters and substrate necessary for fish spawning, breeding, feeding, or growth to maturity. No EFH is identified within San Pablo or Wildcat creeks within the project limits or downstream of I-80.

2.17.3. Environmental Consequences

The project would require vegetation removal in the construction areas on the east side of I-80 within the project limits. The loss of habitat would be minimal as the project area is already heavily urbanized, and construction would be limited to areas bordering the existing freeway. Mature eucalyptus trees and nonnative understory next to the freeway would be removed at the proposed realignment of El Portal Drive to accommodate a new on-ramp. Some vegetation would be removed at the top of the banks at Wildcat Creek, which are dominated by English ivy and provide limited habitat. Vegetation removal could affect migratory birds if it occurs during (and

disrupts) their nesting and breeding season. The nesting season for songbirds and other migratory birds that might occupy the BSA is generally March 1 to August 31.

The project would not adversely affect EFH or fish passage.

2.17.4. Avoidance, Minimization, and/or Mitigation Measures

The project has been designed to avoid construction in the creeks crossed by I-80 within the project limits. Erosion control measures will be required of the construction contractor to prevent material and sediments from entering the creeks. Existing cut slopes, dominated by grassy habitat alongside I-80, will be reseeded following construction. Landscaping will be installed following construction.

Vegetation removal should be timed to avoid the general nesting period for songbirds and other migratory birds (approximately March 1 to August 31). If vegetation must be removed during this period, preconstruction surveys should be conducted to check for the presence of active nests, and a perimeter established to avoid construction near active nests until the breeding pair and any fledglings leave.

2.18. Threatened and Endangered Species

2.18.1. Regulatory Setting

The primary Federal law protecting threatened and endangered species is the FESA (16 USC Section 1531, et seq.; see also 50 CFR Part 402). This act and subsequent amendments provide for the conservation of endangered and threatened species and the ecosystems upon which they depend. Under Section 7 of the FESA, Federal agencies such as FHWA are required to consult with the USFWS and NOAA Fisheries to ensure that they are not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat. Critical habitat is defined as geographic locations critical to the existence of a threatened or endangered species. The outcome of consultation under Section 7 is a Biological Opinion or an incidental take permit. Section 3 of the FESA defines take as “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect or any attempt at such conduct.”

California has enacted a similar law at the State level, the CESA (California Fish and Game Code, Section 2050 et seq.). The CESA emphasizes early consultation to avoid potential impacts to rare, endangered, and threatened species and to develop

appropriate planning to offset project-caused losses of listed species populations and their essential habitats. The CDFG is the agency responsible for implementing CESA. Section 2081 of the California Fish and Game Code prohibits take of any species determined to be an endangered species or a threatened species. Take is defined in Section 86 of the California Fish and Game Code as “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.” The CESA allows for take incidental to otherwise lawful development projects; for these actions an incidental take permit is issued by CDFG. For projects requiring a Biological Opinion under Section 7 of the FESA, the CDFG may also authorize impacts to CESA species by issuing a Consistency Determination under Section 2080.1 of the California Fish and Game Code.

2.18.2. Affected Environment

2.18.2.1. Federal Consultation Process

USFWS species records were reviewed at the outset of the biological studies for the project and were rechecked for updates in July 2008. A copy of the records list is included in Appendix I. The California red-legged frog (CRLF; *Rana aurora draytonii*, listed as threatened under FESA) was identified as potentially of concern in the project region. A habitat site assessment for CRLF was performed within a 1-mile radius of the project limits and submitted to USFWS for comment on November 27, 2007. In a letter dated March 18, 2008, the USFWS recommended that Caltrans further analyze the potential effects of the proposed project on the species (see Appendix I). In response, a Biological Assessment was prepared and submitted to USFWS on September 10, 2008. The Biological Assessment detailed the studies performed to date and identified potentially affected upland habitat in the project limits.

A Biological Assessment addressing the potential for presence of the Central California Coast steelhead in the BSA was submitted to NOAA Fisheries on September 9, 2008. NOAA Fisheries had no comments on the “no effect” determination of the Biological Assessment, thereby concluding formal consultation.

No State-listed endangered, threatened, or fully protected species were identified as being potentially present in the project’s study area. No formal consultation with the CDFG was necessary.

2.18.2.2. Species Addressed in Consultation

California Red-Legged Frog

The CRLF is the only special-status species with the potential to occur in the project area. The species has been recorded in San Pablo and Wildcat creeks approximately 6.3 and 4.7 miles upstream of the project area, respectively. The project is not within a USFWS CRLF Recovery Plan Core Area or a Priority Watershed.

It was concluded that the potential exists for migrating CRLF to disperse through the riparian corridors provided by San Pablo and Wildcat creeks and potentially occur in the project area. San Pablo and Wildcat creeks may provide suitable CRLF breeding and dispersal habitat to the east (upstream), where these creeks are relatively flat or mildly steep and have riffles and pools. Upland areas within one mile of potential breeding sites east of I-80 provide dispersal and aestivation¹⁴ habitat.

From I-80 west, the creeks do not appear to be suitable for breeding and dispersal due to steep banks. Moreover, many culverts extending from a few feet to several city blocks in length are present. They are heavily littered and show substantial siltation from slope erosion. San Pablo Creek is perennial in this area and may support bullfrogs, which prey on CRLF. Other creekside vegetation may shelter cats, rats, and other predators of the CRLF.

Central California Coast Steelhead

Designated critical habitat for the Central California Coast steelhead includes San Pablo Creek and Wildcat Creek within the project vicinity. However, significant passage barriers exist downstream of the project limits, and neither creek contains known populations of steelhead. Suitable habitat is available for steelhead spawning and rearing upstream, but downstream fish barriers render those areas functionally inaccessible to anadromous populations in the San Francisco Bay.

Wildcat Creek is not considered an anchor stream or a high-priority watershed for fish passage restoration because it has been ephemeral since the creation of Lake Anza in 1937–38 and contains barriers to fish passage between San Francisco Bay and I-80. Downstream of the I-80 crossing, a section of Wildcat Creek receives year-round water discharge from the Doctors Medical Center (located downstream of the project). While suitable habitat is available for steelhead spawning and rearing upstream of the project limits, downstream fish barriers render those areas functionally inaccessible to anadromous populations in the San Francisco Bay.

¹⁴ Aestivation is the cessation or slowing of an animal's activity during the summer or a hot period.

Previous surveys have identified a viable population of rainbow trout in this creek, which are likely the descendants of coastal anadromous stock transplanted in 1983 (Leidy et al. 2005).

2.18.3. Environmental Consequences

California Red-Legged Frog

The project is likely to adversely affect, but not jeopardize, CRLF. No CRLF were observed, and no populations are known to exist in the project area. However, without further surveys to confirm the absence of CRLF, the USFWS indicated during consultation that the project area has sufficient connectivity with CRLF breeding sites for the species to be potentially present. Even if surveys were performed, CRLF cannot be ruled out as potentially occurring at the project site in the future.

The project would disturb only one area of potential CRLF habitat: the upper banks of Wildcat Creek. The project would remove vegetation from an area of approximately 0.008 acre (temporary) and 0.031 acre (permanent).

Central California Coast Steelhead

The project would have no effect on Central California Coast steelhead or its critical habitat. No project construction would occur within San Pablo Creek, and construction at Wildcat Creek would be restricted to the top of the banks and outside of the creek bed and adjacent wingwalls. Downstream barriers obstruct fish passage to the project area, and therefore the likelihood for this species to be present within the project limits is very low. Measures are proposed in Section 2.18.4 to ensure that project construction would not affect this species.

2.18.4. Avoidance, Minimization, and/or Mitigation Measures

The following measures were identified to avoid and minimize potential construction impacts:

- Construction-area delineation: Before any ground disturbance occurs, project area boundaries will be clearly delineated with ESA fencing and solid barriers. At San Pablo Creek, the work area will be designated around the existing ramp where pavement will be removed, such that no work will be allowed at or within the creek banks. At Wildcat Creek, the work area will be designated to allow construction of the new bridge abutments near the top of the bank, and barriers will be placed to prevent construction activities, equipment, and erosion from extending beyond the top of the bank area. The ESA fencing and barriers will be

put in place outside of the steelhead migratory season, between June 15 and October 15.

- Construction monitoring: A biological monitor will inspect and record placement of the construction ESA fencing and barriers prior to start of construction. A biologist will monitor the initial ground disturbance activities and during vegetation clearance at Wildcat Creek.
- Vegetation: Vegetation near Wildcat Creek will be removed without the use of heavy machinery or herbicidal sprays to minimize impacts to any special-status species.
- Implementation of erosion control measures: Erosion control measures will be undertaken to minimize sedimentation impacts to the creek. The measures will be limited to tightly woven fiber netting or similar materials to ensure that CRLF do not become entrapped. Erosion control measures developed by the contractor will comply with the *Caltrans Statewide Stormwater Program* (<http://www.dot.ca.gov/hq/env/stormwater/>; Caltrans 2007).
- Onsite construction personnel education program: The USFWS-approved biologist will conduct onsite training with construction personnel for CRLF.
- Spill avoidance and response: Avoidance of spills through implementation of a spill avoidance and response plan will be enforced.
- Entrapment avoidance: To avoid entrapment of CRLF, all excavated steep-walled holes or trenches more than two feet deep will be covered at the end of each working day. Holes or trenches will be fitted with at least one escape ramp. Construction pipes, culverts, and similar structures will be inspected for CRLF before being buried, capped, moved, or otherwise used in any way.
- Following completion of the proposed project, all temporary roads, staging areas, and work areas will be removed and temporary impact areas restored to a natural condition to provide baseline habitat values. All construction-related equipment, including erosion control and ESA fencing, will be removed.

Mitigation for impacts to upland CRLF habitat will be provided at a 1:1 ratio for temporary impacts and at a 3:1 ratio for permanent impacts, as shown in Table 2.18-1. Mitigation credits would be purchased for this species from a USFWS-approved mitigation bank. The Ohlone Preserve Conservation Bank currently has availability for upland CRLF habitat that is appropriate for this mitigation, but other banks may be used if acceptable to USFWS. Alternatively, habitat enhancement could be performed at Wildcat Creek. Final mitigation plans will be defined during final design and permitting of the project.

Table 2.18-1 Proposed Compensatory Mitigation for California Red-Legged Frog Impacts

	Temporary Effects (acres)	Permanent Effects (acres)	Total Mitigation (acres)
Wildcat Creek impacts	0.008	0.031	--
Mitigation	0.008	0.093	0.10

2.19. Invasive Species

2.19.1. Regulatory Setting

On February 3, 1999, President Clinton signed Executive Order 13112 requiring Federal agencies to combat the introduction or spread of invasive species in the United States. The order defines invasive species as “any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem whose introduction does or is likely to cause economic or environmental harm or harm to human health.” FHWA guidance issued August 10, 1999, directs the use of the State’s noxious weed list to define the invasive plants that must be considered as part of the NEPA analysis for a proposed project.

2.19.2. Affected Environment

Plants in the project area include invasive species. The California Invasive Plant Council’s Invasive Plant Inventory (<http://www.cal-ipc.org/ip/inventory/index.php>) lists plants categorized as having high, moderate, or low impacts based on their documented impacts, potential to spread, and the range of habitats they tolerate. The species found in the project that are considered to be threats based on these ratings are as follows:

- English ivy (*Hedera helix*);
- Himalayan blackberry (*Rubus discolor*); and
- Scotch broom (*Cytisus scoparius*).

2.19.3. Environmental Consequences

None of the identified species on the California list of noxious weeds is currently used by Caltrans for erosion control or landscaping. However, project construction

activities could have the potential to inadvertently spread these species if they are present.

2.19.4. Avoidance, Minimization, and/or Mitigation Measures

In compliance with the Executive Order on Invasive Species, E.O. 13112, and subsequent guidance from the Federal Highway Administration, the landscaping and erosion control included in the project will not use species listed as noxious weeds. The contractor will be required to use equipment that is cleaned and inspected for plant material prior to arrival and use at the project site.

Cumulative Impacts

2.20. Cumulative Impacts

2.20.1. Regulatory Setting

Cumulative impacts are those that result from past, present, and reasonably foreseeable future actions, combined with the potential impacts of this project. A cumulative effect assessment considers the collective impacts posed by individual land use plans and projects. Cumulative impacts can result from individually minor but collectively substantial impacts taking place over a period of time.

Cumulative impacts to resources in the project area may result from residential, commercial, industrial, and highway development, as well as from agricultural development and the conversion to more intensive types of agricultural cultivation. These land use activities can degrade habitat and species diversity through consequences such as displacement and fragmentation of habitats and populations, alteration of hydrology, contamination, erosion, sedimentation, disruption of migration corridors, changes in water quality, and introduction or promotion of predators. They can also contribute to potential community impacts identified for the project, such as changes in community character, traffic patterns, housing availability, and employment.

Section 15130 of the CEQA Guidelines describes when a cumulative impact analysis is warranted and what elements are necessary for an adequate discussion of cumulative impacts. The definition of cumulative impacts under CEQA appears in Section 15355 of the CEQA Guidelines. A definition of cumulative impacts under NEPA appears in 40 CFR Section 1508.7 of the Council on Environmental Quality Regulations.

2.20.2. Projects Considered for Cumulative Impacts

To evaluate the potential for cumulative impacts, a list of projects was defined through review of available development and public works projects posted by the Cities of San Pablo and Richmond and by Contra Costa County. The Governor's Office of Planning and Research CEQAnet database was also reviewed to identify proposed projects for which notices of preparation or completion of an environmental document were filed with the State Clearinghouse. The study area for the cumulative

impacts assessment was up to approximately three miles from the project limits and considered conceptual, planned and recently completed projects.

2.20.2.1. Private Development and Nontransportation Projects

Table 2.1-1 in Section 2.1 lists the projects identified through the review of projects to consider for cumulative impacts. The following briefly summarizes the nature of and status of the developments, if known. State Clearinghouse reference numbers (SCH#) are included where available.

- **Abella Paseo, near San Pablo Avenue and El Portal Drive, San Pablo.** This mixed-use development will consist of 292 homes on 36 acres. The first phase of development was completed in 2006.
- **Amador Street to San Pablo Dam Road Sidewalk Gap Closure.** Construction will involve concrete curb, gutter, and sidewalk installation where none exists on Amador Street.
- **El Paseo Family Apartments (Brookside Drive Family Housing), Brookside Drive and Giant Road, San Pablo (SCH#2006079024).** The project includes construction of 144 apartments on approximately 3.7 acres of vacant land on the bank of Wildcat Creek.
- **College Center Shops, San Pablo Avenue at El Portal Drive, San Pablo.** The development will maintain an existing supermarket and restaurant business and add two new commercial buildings. Construction is scheduled to proceed in phases in 2008–2009.
- **Forest Green Estates Residential Project, San Pablo Dam Road at Clark Road, El Sobrante (SCH#2000012110).** The proposed project consists of 121 detached single-family dwellings and a neighborhood park developed on 81.12 acres of vacant land. The project plan also includes 31.7 acres of common open space, 4.3 acres of park, and 7.0 acres of streets and emergency vehicle access. The site is currently undeveloped and has gently sloping terrain.
- **Caprigo Construction, 14345 San Pablo Avenue, San Pablo.** This project will construct four new residential structures with associated driveways and walkways on the 22nd Street frontage, and a two-story mixed-use commercial facility on the San Pablo Avenue frontage with retail/office on the lower floor and residential on the upper floor.
- **El Portal Drive corridor improvements.** The project includes a pedestrian walkway, masonry wall along the edge of right-of-way, landscaping, streetlights, architectural entry features, improvements to signalized intersections, paving, and restriping. The current phase of work consists of the section that parallels the

I-80 within the limits of the proposed I-80/San Pablo Dam Road Interchange Project. Utility undergrounding has been completed. Street improvements are being coordinated to accommodate the interchange project's westbound I-80 on-ramp.

- **El Portal School Site, near Moraga Road/El Portal Drive, San Pablo.** The City of San Pablo Redevelopment Agency acquired this nine-acre site for potential development as recreational fields or open space.
- **Contra Costa College Improvements Implementation Project, El Portal Drive near San Pablo Avenue, San Pablo (SCH #2008112091).** The Contra Costa Community College District is proposing to demolish, construct, and renovate various buildings and make improvements to the landscaping and campus facilities on the Contra Costa College campus as described in the District's 2007 Facilities Master Plan. The District would also make improvements to landscaping and hardscape features at campus entry points and several plazas and would construct a pedestrian bridge over Rheem Creek.
- **Davis Park Master Plan (SCH#2008072042).** Davis Park is an approximately 12-acre park located on the west side of San Pablo. The park is along Wildcat Creek, between 23rd Avenue and Rumrill Road, about 1.2 miles west of I-80. The City of San Pablo proposes to implement a series of improvements at Davis Park that would enhance existing facilities and provide new facilities to meet various needs, including community gatherings, family recreation, and civic activities.
- **San Pablo Dam Seismic Upgrade, San Pablo Dam Road, about 3.5 miles east of I-80 (SCH#2005092021).** The purpose of the San Pablo Dam Seismic Upgrade Project is to improve the embankment and foundation soils downstream of San Pablo Dam to withstand shaking generated by the maximum credible earthquake on the Hayward–Rogers Creek fault without significant strength loss, to limit permanent deformation or settlement at the dam crest to acceptable levels, and to prevent damage to the outlet works. The proposed project involves the use of large, multiple-auger equipment to inject and mix cement grout into portions of the dam foundation material, and the construction of a larger buttress fill on the downstream face of the dam.
- **Rumrill Boulevard Bridge Replacement Project (PW-442), Rumrill Boulevard near Brookside Drive, San Pablo (SCH#2008012045).** This seismic retrofit and widening project will replace the existing five-lane, 76-foot-wide bridge on Rumrill Boulevard over San Pablo Creek with a new five-lane, 84-foot-wide bridge. The project will improve approach roadways, including

reconstructing the Rumrill Boulevard/Brookside Drive signalized intersection. The project, which is about 1.3 miles west of I-80, will require acquisition of two adjacent residential properties on southwest and southeast corners of the bridge.

- **Wanlass Park Improvements Project, Rivers Street west of San Pablo Avenue, San Pablo (SCH#2007092086).** The proposed development includes the construction of a park about 1.1 miles west of I-80. Improvements include an Environmental Education Center, vehicle/pedestrian bridge, restoration of a portion of Rheem Creek, play areas for children aged two to five and five to 12, picnic areas, walking trails, a large grass field, a covered rest area, a public restroom, and maintenance storage building. To provide security and facilitate limited nighttime recreational activities, the development will also include park lighting. The site will have perimeter fencing along the western, eastern, and southern sides.
- **Wildcat Creek Trail / Davis Park to 23rd Street.** This project involves the development and construction of a paved pedestrian/bicycle trail along the north bank of Wildcat Creek between Davis Park and 23rd Street (about 0.9 mile west of I-80). This is a planned extension of the existing trail system from Davis Park to the Bay, and a link in the future Wildcat Creek Regional Trail connecting the Bay and Ridge trails. The project includes creek restoration and a park at the trailhead at 23rd Street.
- **Wildcat / San Pablo Creeks Flood Control.** The first phase of the USACE flood control project on the creeks was completed just downstream of the City of San Pablo. The second phase is planned within the City of San Pablo and will take years to complete. The USACE has completed a reconnaissance study but project construction has not yet been scheduled.

2.20.2.2. Transportation Projects

Transportation projects in San Pablo and Richmond include the following:

- **I-80/Central Avenue Interchange Operational Improvement Project.** Improvements to the I-80/Central Avenue interchange are included in the I-80 integrated mobility project. This project is in the design phase.
- **Road 20/El Portal Drive Intersection Reconfiguration.** The intersection of Road 20 and El Portal Drive will be reconfigured to eliminate the single lane from Road 20 to Church Lane and instead bring all traffic to the signalized intersection.
- **Richmond Parkway Upgrade Study.** This existing route is being evaluated for costs and feasibility for adoption as an Urban Arterial.

- **I-80 Eastbound HOV Lanes.** The project will extend the eastbound HOV lanes from State Route 4 to the Crockett interchange.
- **San Pablo Dam Road Transit and Pedestrian Improvements.** Transit stops, sidewalks, and pedestrian amenities are planned on San Pablo Dam Road in El Sobrante.
- **San Pablo Avenue Bicycle and Pedestrian Improvements.** Bicycle and pedestrian improvements are planned along San Pablo Avenue from El Cerrito to Crockett to support transit-oriented development.
- **El Portal Drive Improvements and 8-Foot Masonry Wall.** The City of San Pablo will construct an 8-foot-high masonry wall along the east side of El Portal Drive, anticipated in 2009. The wall will replace existing wooden fences.

2.20.3. Environmental Consequences

The projects listed above were considered together with the proposed I-80/San Pablo Dam Road Interchange Project for the potential for cumulative impacts. The potential impacts are described by resource area below.

2.20.3.1. Land Use and Community Resources

A number of the recently completed and proposed projects added or will add homes, commercial/retail, school improvements, and parks in the region surrounding the I-80/San Pablo Dam Road Interchange Project area. None of these projects overlap geographically or combine with the proposed interchange improvements to create adverse cumulative impacts for land use or community resources. The Rumrill Boulevard Bridge Replacement Project (SCH#2008012045) will acquire two homes, but other projects have added or will add 500 to 600 new residential units to the area.

2.20.3.2. Traffic and Transportation

The transportation analysis for the I-80/San Pablo Dam Road Interchange Project included growth projections through 2035 from regional land use projections that are based on Association of Bay Area Governments and Metropolitan Transportation Commission forecasts. The cumulative list of projects identified 500 to 600 new residential units that have recently been added or are planned for construction in the cumulative impact study area. The additional traffic from the new residential units will be distributed over local and regional roads, are within the 2035 growth forecasts used for the traffic analysis, and would not change the conclusions of the transportation analysis. Traffic from the cumulative impact projects is likely to predominantly use San Pablo Avenue, El Portal Drive, and San Pablo Dam Road. The

I-80/San Pablo Dam Road Interchange Project will improve capacity on I-80 and help to reduce traffic on local roads.

2.20.3.3. Visual Resources

The I-80/San Pablo Dam Road Interchange Project will mostly replace sections of existing soundwalls on I-80, similar to the existing setting. Following construction, drivers will continue to see soundwalls along the freeway in approximately the same locations. Residents along Humboldt Avenue will have a direct view of a relocated soundwall, instead of neighboring homes, which will add to the urbanized appearance of this area. The City of San Pablo will construct an eight-foot-high wall on El Portal Drive that will replace existing wooden fencing. Views on El Portal Drive will include the up to 16-foot-high soundwall on the east side and an eight-foot-high wall on the west side. El Portal Drive will appear more enclosed than under current conditions, although the existing wooden fencing contributes to this cumulative effect. The majority of the other cumulative projects identified will add or replace housing and commercial uses within the already urbanized areas of San Pablo, Richmond, and Contra Costa County to the west of I-80, and no noticeable change in the visual landscape or viewshed is expected.

2.20.3.4. Air Quality and Noise

The cumulative impact projects include housing and commercial developments that will add vehicle trips to regional roadways and potentially affect existing and future air quality and local noise levels. As noted in Section 2.20.3.2, growth in traffic through the year 2035 was accounted for in the traffic study for the I-80/San Pablo Dam Road Interchange Project, which was the basis for the modeling and analysis of air quality and noise impacts. Therefore, regional and local increases in traffic have already been used to evaluate these impacts, and the local development projects fall well within the growth projections used in these studies. In addition, the proposed interchange project is considered to meet regional air quality conformity requirements if it is included in a current TIP and RTP. The TIP and RTP undergo a cumulative transportation project, land use growth, and air quality evaluation.

None of the cumulative projects identified will add homes or businesses directly adjacent to I-80 or the roads within the project limits that might be exposed to freeway noise or air quality emissions.

Construction of the cumulative projects would result in temporary air quality and noise impacts, including dust and diesel emissions from construction equipment and

activities. The City of San Pablo's El Portal Drive corridor improvements project would overlap geographically with the I-80/San Pablo Dam Road Interchange Project, but the city's project would be completed at least one year before construction would begin at the interchange. Construction emissions would not occur at the same time, and no substantial cumulative air quality impacts are predicted. All of the cumulative projects must adhere to the same BAAQMD and local ordinance requirements. Likewise, all of the cumulative projects' construction contractors will have to comply with local noise ordinances.

2.20.3.5. Biological Environment

The proposed I-80/San Pablo Dam Road Interchange Project would require the removal of vegetation, primarily on the west side of I-80 within the project limits. The majority of this vegetation is grasses, shrubs, and nonnative trees (such as eucalyptus). Impacts to San Pablo Creek would be entirely avoided, and construction at Wildcat Creek would be limited to the top of the bank. No wetland impacts would occur. Impacts to biological resources have been minimized and would be mitigated through replacement planting. Potential impacts to California red-legged frog habitat at Wildcat Creek will be offset through habitat restoration or contribution to a mitigation bank.

Some of the cumulative projects have or will have effects on San Pablo and Wildcat creeks. The Rumrill Bridge project is on San Pablo Creek 1.3 miles downstream, the Davis Park Master Plan is on Wildcat Creek 1.2 miles downstream, and the San Pablo Dam Seismic Upgrade project is on San Pablo Creek about 3.3 miles upstream. The I-80/San Pablo Dam Road Interchange Project would not affect San Pablo Creek, and would therefore not contribute to any cumulative effects from other projects on this creek. On Wildcat Creek, the only project identified was the Davis Park Master Plan, which is at a planning stage of development. No details are available about potential biological impacts to Wildcat Creek. The Davis Park Master Plan would not be expected to have an adverse impact on the creek because the park already exists. Other than San Pablo and Wildcat creeks, no sensitive biological habitat was identified in the project corridor. Therefore, the I-80/San Pablo Dam Road Interchange Project would not result in any cumulative adverse biological impacts.

2.21. Climate Change

2.21.1. Regulatory Setting

While climate change has been a concern since at least 1988, as evidenced by the establishment of the United Nations and World Meteorological Organization's Intergovernmental Panel on Climate Change, the efforts devoted to greenhouse gas (GHG) emissions reduction and climate change research and policy have increased dramatically in recent years. These efforts are primarily concerned with the emissions of GHG related to human activity that include carbon dioxide (CO₂), methane, nitrous oxide, tetrafluoromethane, hexafluoroethane, sulfur hexafluoride, HFC-23 (fluoroform), HFC-134a (s, s, s, 2-tetrafluoroethane), and HFC-152a (difluoroethane).

In 2002, with the passage of Assembly Bill 1493 (AB 1493), California launched an innovative and pro-active approach to dealing with GHG emissions and climate change at the State level. Assembly Bill 1493 requires the California Air Resources Board (CARB) to develop and implement regulations to reduce automobile and light truck GHG emissions. These stricter emissions standards were designed to apply to automobiles and light trucks beginning with the 2009 model year; however, in order to enact the standards, California needed a waiver from the USEPA. The waiver was denied by USEPA in December 2007. See *California v. Environmental Protection Agency*, 9th Cir. Jul. 25, 2008, No. 08-70011. However, on January 26, 2009, it was announced that the USEPA will reconsider their decision regarding the denial of California's waiver. On May 18, 2009, President Obama announced the enactment of a 35.5 miles per gallon (mpg) fuel economy standard for automobiles and light duty trucks, which will take effect in 2012. This standard is the same standard that was proposed by California, and so the California waiver request has been shelved.

On June 1, 2005, Governor Arnold Schwarzenegger signed Executive Order S-3-05. The goal of this Executive Order is to reduce California's GHG emissions to: 1) 2000 levels by 2010, 2) 1990 levels by the 2020, and 3) 80 percent below the 1990 levels by the year 2050. In 2006, this goal was further reinforced with the passage of AB 32, the Global Warming Solutions Act of 2006. AB 32 sets the same overall GHG emissions reduction goals while further mandating that CARB create a plan, which includes market mechanisms, and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases." Executive Order S-20-06 further directs State agencies to begin implementing AB 32, including the recommendations made by the State's Climate Action Team.

With Executive Order S-01-07, Governor Schwarzenegger set forth the low carbon fuel standard for California. Under this executive order, the carbon intensity of California's transportation fuels is to be reduced by at least 10 percent by 2020.

Climate change and GHG reduction are also a concern at the Federal level; however, at this time, no legislation or regulations have been enacted specifically addressing GHG emissions reductions and climate change. California, in conjunction with several environmental organizations and several other states, sued to force the USEPA to regulate GHG as a pollutant under the Clean Air Act (*Massachusetts v. Environmental Protection Agency et al.*, 549 U.S. 497 (2007)). The court ruled that GHG does fit within the Clean Air Act's definition of a pollutant, and that the USEPA does have the authority to regulate GHG. Despite the Supreme Court ruling, there are no promulgated Federal regulations to date limiting GHG emissions.

According to *Recommendations by the Association of Environmental Professionals on How to Analyze GHG Emissions and Global Climate Change in CEQA Documents* (March 5, 2007), an individual project does not generate enough GHG emissions to significantly influence global climate change. Rather, global climate change is a cumulative impact. This means that a project may participate in a potential impact through its incremental contribution combined with the contributions of all other sources of GHG. In assessing cumulative impacts, it must be determined if a project's incremental effect is "cumulatively considerable." See CEQA Guidelines Sections 15064(i)(1) and 15130. To make this determination, the incremental impacts of the project must be compared with the effects of past, current, and probable future projects. To gather sufficient information on a global scale of all past, current, and future projects to make this determination is a difficult, if not impossible, task.

As part of its supporting documentation for the Draft Scoping Plan, CARB recently released an updated version of the GHG inventory for California (June 26, 2008). Figure 2.21-1 is a graph from that update that shows the total GHG emissions for California for 1990, 2002–2004 average, and 2020 projected if no action is taken.

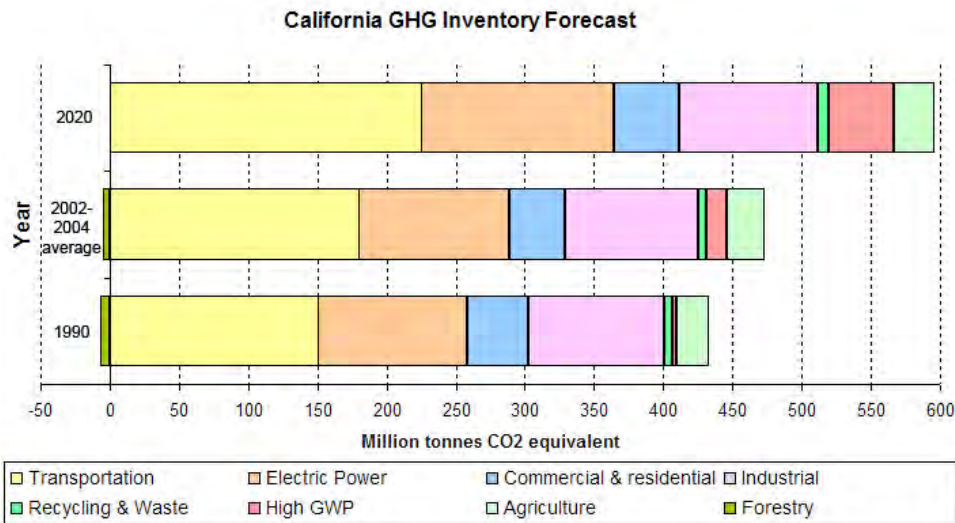
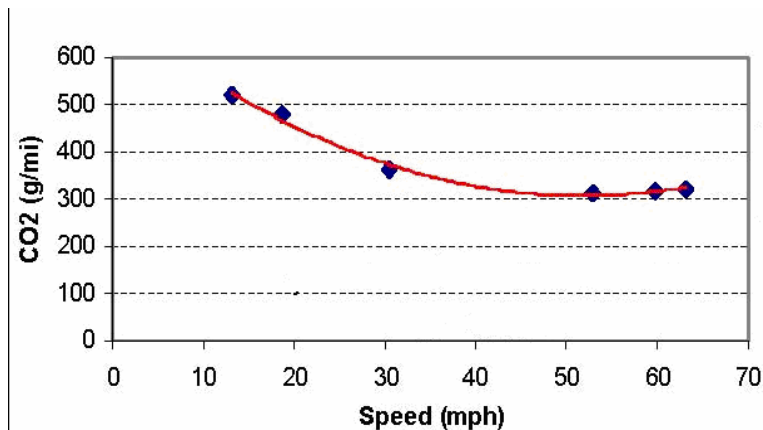


Figure 2.21-1 California Greenhouse Gas Inventory

Caltrans and its parent agency, the Business, Transportation, and Housing Agency, have taken an active role in addressing GHG emission reduction and climate change. Recognizing that 98 percent of California's GHG emissions are from the burning of fossil fuels and 40 percent of all human-made GHG emissions are from transportation, Caltrans has created and is implementing the Climate Action Program at Caltrans, which was published in December 2006. This document can be found at: <http://www.dot.ca.gov/docs/ClimateReport.pdf>.

2.21.2. Environmental Consequences

One of the main strategies in the Department's Climate Action Program to reduce GHG emissions is to make California's transportation system more efficient. The highest levels of carbon dioxide from mobile sources, such as automobiles, occur at stop-and-go speeds (0 to 25 miles per hour) and speeds over 55 mph; the most severe emissions occur from 0 to 25 miles per hour (see Figure 2.21-2). To the extent that a project relieves congestion by enhancing operations and improving travel times in high congestion travel corridors GHG emissions, particularly CO₂, may be reduced.



Source: Center for Clean Air Policy, [http://www.ccap.org/Presentations/Winkelman%20TRB%202004%20\(1-13-04\).pdf](http://www.ccap.org/Presentations/Winkelman%20TRB%202004%20(1-13-04).pdf)

Figure 2.21-2 Fleet CO₂ Emissions vs. Speed (Highway)

The project focuses on improving traffic operations and bicycle/pedestrian access at the I-80/San Pablo Dam Road Interchange. Current traffic operations are limited at the interchange ramps and intersections, which create long queues on San Pablo Dam Road and Amador Street. The project would improve traffic operations at congested intersection and ramp locations, reducing or avoiding traffic queues that currently impact I-80 operations between El Portal Drive and McBryde Avenue. The *Traffic Operations Report* for this project estimates an increase in the number of vehicles on the freeway that will travel through the project area (four percent to 20 percent, depending on direction and AM or PM peak travel period) but an overall reduction in total travel time of 12 percent to 19 percent, and reductions in delay time of five percent to 64 percent (URS 2008a). Reductions in delays will also reduce emissions of pollutants, including carbon dioxide. The project is also included in the 2009 RTP and TIP, which contain adopted strategies for greenhouse gas emissions from transportation sources. Specifically, TIP reference number 230550, “Transportation Climate Action Campaign,” is an adopted five-year program for the Bay Area region involving outreach and education, promotion of safe routes to school and transit, and funding for transit priorities. The adopted TIP also demonstrates that the region will remain below all approved “vehicle emission budgets” through the 2035 study year.

The project design incorporates facilities that will improve access to alternative modes of transportation (specifically, the proposed bike and pedestrian facilities described in Section 1.3.1). This project focuses on improving the traffic operations at San Pablo Dam Road and the interchange ramps. The project would not add capacity to I-80. Transit alternatives were not evaluated, as additional buses or other transit service would not sufficiently meet the need to improve the operations at intersections

on San Pablo Dam Road at the freeway on- and off-ramps, or reduce weaving conflicts for traffic entering or exiting the freeway. The project area is already served by existing Alameda-Contra Costa (AC) Transit bus routes¹⁵ that connect to the Bay Area Rapid Transit (BART) El Cerrito Del Norte and Richmond stations. The project is limited to improvements at the interchanges within the project limits, would not add capacity to I-80, and would not affect traffic flow at a regional level (compared to the No Build Alternative). The project is therefore not expected to have a substantial effect on regional CO₂ emissions or climate change.

2.21.2.1. Construction Emissions

GHG emissions for transportation projects can be divided into those produced during construction and those produced during operations. Construction GHG emissions include emissions produced as a result of material processing, emissions produced by onsite construction equipment, and emissions arising from traffic delays due to construction. These emissions will be produced at different levels throughout the construction phase; their frequency and occurrence can be reduced through innovations in plans and specifications and by implementing better traffic management during construction phases. In addition, with innovations such as longer pavement lives, improved traffic management plans, and changes in materials, the GHG emissions produced during construction can be mitigated to some degree by longer intervals between maintenance and rehabilitation events. Measures to reduce construction emissions are listed in Section 2.12.4 and include maintenance of construction equipment and vehicles, limiting of construction vehicle idling time, and scheduling and routing of construction traffic to reduce engine emissions.

2.21.2.2. AB 32 Compliance

The Department continues to be actively involved on the Governor's Climate Action Team as CARB works to implement the Governor's Executive Orders and help achieve the targets set forth in AB 32. Many of the strategies that the Department is using to help meet the targets in AB 32 come from the California Strategic Growth Plan, which is updated each year. Governor Schwarzenegger's Strategic Growth Plan calls for a \$238.6 billion infrastructure improvement program to fortify the State's transportation system, education, housing, and waterways, including \$100.7 billion in transportation funding through 2016. As shown in Figure 2.21-3, the Strategic Growth Plan targets a significant decrease in traffic congestion below today's level

¹⁵ Local AC Transit routes 70, 72, and 74 pass through or near (along San Pablo Avenue) the project area. These routes connect to the BART Richmond-Daly City/SFO Airport and Richmond-Fremont lines.

and a corresponding reduction in GHG emissions. The Strategic Growth Plan proposes to do this while accommodating growth in population and the economy. A suite of investment options has been created that together yield the promised reduction in congestion. The Strategic Growth Plan relies on a complete systems approach of a variety of strategies: system monitoring and evaluation, maintenance and preservation, smart land use and demand management, and operational improvements.

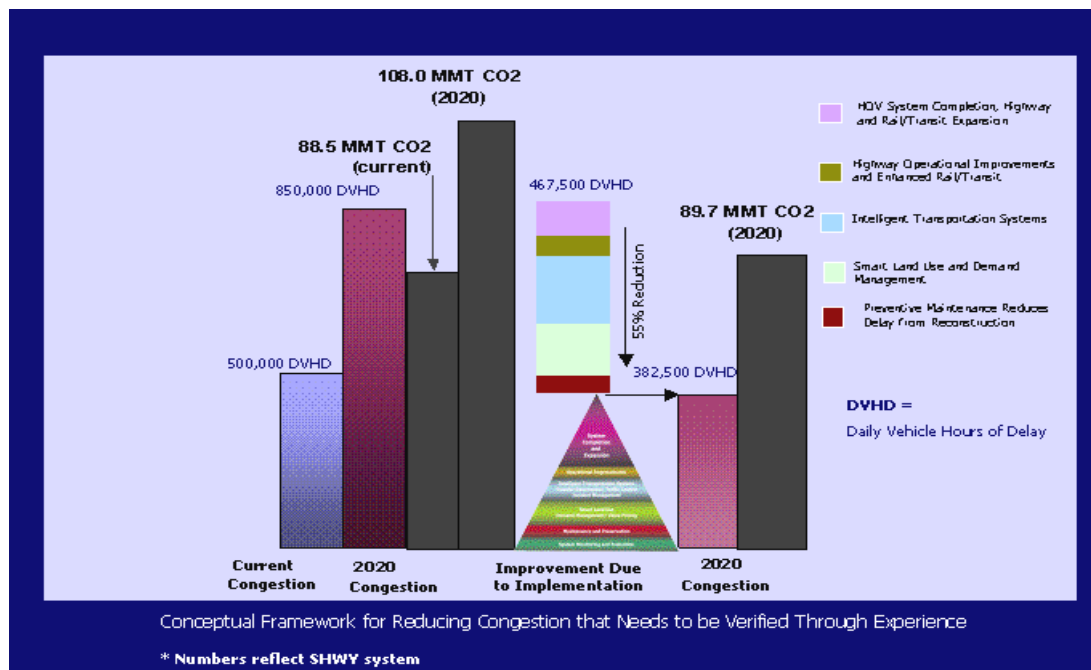


Figure 2.21-3 Outcome of Strategic Growth Plan

As part of the Climate Action Program at Caltrans (December 2006, <http://www.dot.ca.gov/docs/ClimateReport.pdf>), the Department is supporting efforts to reduce vehicle miles traveled by planning and implementing smart land use strategies: job/housing proximity, developing transit-oriented communities, and high-density housing along transit corridors. Caltrans is working closely with local jurisdictions on planning activities; however, Caltrans does not have local land use planning authority. Caltrans is also supporting efforts to improve the energy efficiency of the transportation sector by increasing vehicle fuel economy in new cars, light and heavy-duty trucks. Caltrans is doing this by supporting ongoing research efforts at universities, by supporting legislative efforts to increase fuel economy, and by its participation on the Climate Action Team. It is important to note, however, that the control of the fuel economy standards is held by the USEPA and

CARB. Lastly, the use of alternative fuels is also being considered; the Department is participating in funding for alternative fuel research at UC Davis.

Table 2.21-1 summarizes Department and statewide efforts that Caltrans is implementing to reduce GHG emissions. For more detailed information about each strategy, please see the Climate Action Program at Caltrans (December 2006, available at <http://www.dot.ca.gov/docs/ClimateReport.pdf>).

To the extent that it is applicable or feasible for the project and through coordination with the project development team, the following measures will be included in the project to reduce the GHG emissions and potential climate change impacts from the project:

1. Caltrans and the California Highway Patrol are working with regional agencies to implement intelligent transportation systems (ITS) to help manage the efficiency of the existing highway system. ITS is commonly referred to as electronics, communications, or information processing used singly or in combination to improve the efficiency or safety of a surface transportation system.
2. I-80 is part of the Bay Area high occupancy vehicle lane network, and the MTC and other agencies actively encourage ridesharing (e.g., the “511.org” ridesharing information link provides resources for ride sharing and trip planning). Ridesharing, or carpooling, reduces vehicle trips and their associated emissions.
3. Landscaping reduces surface warming, and through photosynthesis, decreases CO₂. The project will include landscaping as described in Section 2.6.4. The landscaping will help to offset potential CO₂ emissions.
4. The project will utilize energy efficient lighting, which will be defined during final design.

Table 2.21-1 Climate Change Strategies

Strategy	Program	Partnership		Method/Process	Estimated CO ₂ Savings (MMT)	
		Lead	Agency		2010	2020
Smart Land Use	Intergovernmental Review (IGR)	Caltrans	Local Governments	Review and seek to mitigate development proposals	Not Estimated	Not Estimated
	Planning Grants	Caltrans	Local and regional agencies & other stakeholders	Competitive selection process	Not Estimated	Not Estimated
	Regional Plans and Blueprint Planning	Regional Agencies	Caltrans	Regional plans and application process	0.975	7.8
Operational Improvements & Intelligent Trans. System (ITS) Deployment	Strategic Growth Plan	Caltrans	Regions	State ITS; Congestion Management Plan	.007	2.17
Mainstream Energy & GHG into Plans and Projects	Office of Policy Analysis & Research; Division of Environmental Analysis	Interdepartmental effort		Policy establishment, guidelines, technical assistance	Not Estimated	Not Estimated
Educational & Information Program	Office of Policy Analysis & Research	Interdepartmental, CalEPA, CARB, CEC		Analytical report, data collection, publication, workshops, outreach	Not Estimated	Not Estimated
Fleet Greening & Fuel Diversification	Division of Equipment	Department of General Services		Fleet Replacement B20 B100	0.0045	0.0065 0.45 .0225
Non-vehicular Conservation Measures	Energy Conservation Program	Green Action Team		Energy Conservation Opportunities	0.117	.34
Portland Cement	Office of Rigid Pavement	Cement and Construction Industries		2.5% limestone cement mix 25% fly ash cement mix > 50% fly ash/slag mix	1.2 .36	3.6
Goods Movement	Office of Goods Movement	Cal EPA, CARB, BT&H, MPOs		Goods Movement Action Plan	Not Estimated	Not Estimated
Total					2.72	18.67

2.21.2.3. Adaptation Strategies

“Adaptation strategies” refers to how the Department and others can plan for the effects of climate change on the State’s transportation infrastructure and strengthen or protect the facilities from damage. Climate change is expected to produce increased variability in precipitation, rising temperatures, rising sea levels, storm surges and intensity, and the frequency and intensity of wildfires. These changes may affect the transportation infrastructure in various ways, such as damaging roadbeds by longer periods of intense heat; increasing storm damage from flooding and erosion; and inundation from rising sea levels. These effects will vary by location and may, in the most extreme cases, require that a facility be relocated or redesigned. There may also be economic and strategic ramifications as a result of these types of impacts to the transportation infrastructure.

Climate change adaptation must also involve the natural environment as well. Efforts are underway on a statewide level to develop strategies to cope with impacts to habitat and biodiversity through planning and conservation. The results of these efforts will help California agencies plan and implement mitigation strategies for programs and projects.

On November 14, 2008, Governor Schwarzenegger signed Executive Order S-13-08, which directed a number of State agencies to address California’s vulnerability to sea level rise caused by climate change.

The California Resources Agency (now the Natural Resources Agency [Resources Agency]), through the interagency Climate Action Team, was directed to coordinate with local, regional, State and Federal public and private entities to develop a State Climate Adaptation Strategy. The Climate Adaptation Strategy will summarize the best known science on climate change impacts to California, assess California's vulnerability to the identified impacts, and then outline solutions that can be implemented within and across State agencies to promote resiliency.

As part of its development of the Climate Adaptation Strategy, the Resources Agency was directed to request the National Academy of Science to prepare a Sea Level Rise Assessment Report by December 2010 to advise how California should plan for future sea level rise. The report is to include:

- Relative sea level rise projections for California, taking into account coastal erosion rates, tidal impacts, El Niño and La Niña events, storm surge and land subsidence rates;

- The range of uncertainty in selected sea level rise projections;
- A synthesis of existing information on projected sea level rise impacts to State infrastructure (such as roads, public facilities and beaches), natural areas, and coastal and marine ecosystems; and
- A discussion of future research needs regarding sea level rise for California.

Furthermore, Executive Order S-13-08 directed the Business, Transportation, and Housing Agency to prepare a report to assess vulnerability of transportation systems to sea level affecting safety, maintenance, and operational improvements of the systems and economy of the State. The Department continues to work on assessing the transportation system vulnerability to climate change, including the effect of sea level rise.

Prior to the release of the final Sea Level Rise Assessment Report, all State agencies that are planning to construct projects in areas vulnerable to future sea level rise were directed to consider a range of sea level rise scenarios for the years 2050 and 2100 in order to assess project vulnerability and, to the extent feasible, reduce expected risks and increase resiliency to sea level rise. However, all projects that have filed a Notice of Preparation, and/or are programmed for construction funding during the next five years (through 2013), or are routine maintenance projects as of the date of Executive Order S-13-08 may, but are not required to, consider these planning guidelines. Sea level rise estimates should also be used in conjunction with information regarding local uplift and subsidence, coastal erosion rates, predicted higher high water levels, storm surge and storm wave data. (Executive Order S-13-08 allows some exceptions to this planning requirement.)

Climate change adaptation for transportation infrastructure involves long-term planning and risk management to address vulnerabilities in the transportation system from increased precipitation and flooding; the increased frequency and intensity of storms and wildfires; rising temperatures; and rising sea levels. The Department is an active participant in the efforts being conducted as part of Governor's Schwarzenegger's Executive Order on Sea Level Rise and is mobilizing to be able to respond to the National Academy of Science report on Sea Level Rise Assessment, which is due to be released by December 2010. Currently, the Department is working to assess which transportation facilities are at greatest risk from climate change effects. However, without statewide planning scenarios for relative sea level rise and other climate change impacts, the Department has not been able to determine what change, if any, may be made to its design standards for its transportation facilities.

Once statewide planning scenarios become available, the Department will be able to review its current design standards to determine what changes, if any, may be warranted in order to protect the transportation system from sea level rise.

Potential effects of climate change to the project and its immediately surrounding area are unknown. The project area is inland and at about 50 feet elevation above sea level, and therefore it would require a substantial increase in the elevation of the Bay before experiencing seawater intrusion. Increased erosion from more frequent and intense storm events could increase erosion of creek banks, requiring more frequent maintenance or repair at I-80 creek crossings within the project area.



Chapter 3. Comments and Coordination

Early and continuing coordination with the general public and appropriate public agencies is an essential part of the environmental process to determine the scope of environmental documentation, the level of analysis, potential impacts and mitigation measures, and related environmental requirements. Agency consultation and public participation for this project have been accomplished through a variety of formal and informal methods, including project development team meetings, interagency coordination meetings, and public information meetings. This chapter summarizes the results of the Department's efforts to fully identify, address, and resolve project-related issues through early and continuing coordination. Copies of consultation correspondence are included in Appendix I.

3.1. Initial Project Development and Public Participation

Public outreach for the proposed project began with a community meeting held on July 23, 2003, at the San Pablo Civic Center in Alvarado Square, 13831 San Pablo Avenue, San Pablo (about 0.5 mile from the project limits). At the time of the meeting, three build alternatives and a No Build Alternative were being considered. Representatives from the Department, City of San Pablo, and CCTA made presentations describing the project alternatives, the Department's planning process, the history and need for the project, the project partners, the tentative planning schedule, and how to remain involved as the project planning progressed. The information was provided in English and Spanish. A total of 46 individuals signed in, including area residents and business representatives, members of the City Council, County and City administrators, the Richmond Chapter of the National Association for the Advancement of Colored People, various cycling organizations, the San Pablo Hispanic Chamber of Commerce, ethnic media outlets, and religious organizations/congregations. Meeting invitations were distributed by direct mail to approximately 300 individuals and organizations. Approximately two weeks before the meeting, a follow-up flyer was mailed to the same mailing list along with about 400 additional names provided by the San Pablo Hispanic Chamber of Commerce and the West Contra Costa Transportation Advisory Committee. Flyers advertising the meeting were also handed out and posted in business areas. Press releases were distributed, resulting in coverage by the *Contra Costa Times* newspaper.

A number of commenters expressed the desire for the project to accommodate bicycle and pedestrian facilities and a preference for the Tight Diamond Alternative (Alternative 2 with the current project). Other comments included concerns about the China Slide area and proximity to the Hayward fault, issues with signal timing, a request to consider a left-turn movement at Amador Street/San Pablo Dam Road, and concerns about traffic congestion during construction and potential impacts to the existing San Pablo RV Center.

A Project Study Report/Project Development Support (PSR/PDS) document for the project was completed in May 2004. The PSR/PDS defined three potential alternatives for replacement of the I-80/San Pablo Dam Road Interchange.

3.2. Consultation and Coordination with Public Agencies

This section summarizes the results of contact and consultation with other public agencies during project development. These include specific consultation with Federal, State, and local agencies as listed below. Public agencies were also included in the notification of the public workshops and meetings held, which are described in Section 3.3. Copies of written consultation with agencies are included in Appendix I.

U.S Fish and Wildlife Service

- July 2008: A list of species of concern was obtained from the California Department of Fish and Game's California Natural Diversity Database (CNDDB) and from the online database of the United States Fish and Wildlife Service (USFWS) Sacramento field office. These lists were used to assist in the identification of sensitive plant and wildlife species that might occur in the project region.
- November 27, 2007: A habitat assessment for California red-legged frog was completed and submitted to the USFWS.
- March 18, 2008: USFWS responded to the habitat assessment that the project area has sufficient connectivity with California red-legged frog breeding sites for the species to be potentially present.
- October 2007 and April 2008: East Bay Regional Park District (EBRPD) and East Bay Municipal Utility District (EBMUD) were contacted to request any information about the potential for California red-legged frog presence in the project vicinity.

- September 10, 2008: Transmittal of Biological Assessment for California red-legged frog to USFWS, with request to initiate consultation under Section 7 of the Endangered Species Act.

NOAA Fisheries

- September 9, 2008: A Biological Assessment for the Central California Coast Steelhead was completed and submitted with a request for concurrence with a no effect determination. NOAA Fisheries did not have any comments on the BA. Consultation has been completed.

West Contra Costa Unified School District

- October 1, 2008: As a result of the public notification and coordination actions summarized in Section 3.3, the West Contra Costa Unified School District expressed interest in relocating the eastern touchdown of the pedestrian overcrossing from its existing location on the west side of Amador Street to the east side of Amador Street. This change in the project design would allow students of Riverside Elementary School (and the public) reach the school and the surrounding area from the west side of I-80 without having to cross busy Amador Street. The District's October 1, 2008, letter comments on this proposed relocation of the structure, requesting that CCTA continue to work with District staff during the design phase of the project. The District is in concurrence with the concept to relocate the facility.

3.3. Public Participation in Development of the Draft Environmental Document and Draft Project Report

A series of public meetings that involved presentations of the project and receipt of comments were held during the development of the Draft Project Report and Draft Environmental Document. Each meeting is summarized below.

3.3.1. Project Information Posted on Agency and Community Websites

Links to websites that contain project description information, project schedule, public informational events, and meeting information, and contacts for additional information have been posted with the City of San Pablo (<http://www.ci.san-pablo.ca.us/main/NewsEvents.htm>), the City of Richmond (<http://www.ci.richmond.ca.us/CurrentEvents.asp?EID=3431>), and Contra Costa Transportation Authority (<http://www.ccta.net/roads/sanpablo.shtml>).

3.3.2. November 29, 2007, Property Owner Meeting

The project team held a meeting on November 29, 2007 (6:30 PM to 8 PM) at the San Pablo Civic Center, City Hall, to inform property owners about partial or entire acquisitions of their properties for the purposes of the project. The meeting was designed to ensure the project team made direct contact with residents and businesses that might be directly affected by property acquisition. The most important reasons for doing so were to inform those parties about the project development process and timing, and their rights during any future right-of-way acquisition.

U.S. mail notices were sent to 57 owners and residents (all owners and occupants of properties subject to potential land acquisition), and follow-up phone calls were made to invite them to attend this meeting. Eight residents attended, as well as employees of the self-storage business on Riverside Avenue. The project team provided an overview of the project and alternatives and conducted a question and answer session. Project maps were provided, including details of the potentially affected parcels. Department right-of-way specialists participated and provided pamphlets on the process that will be followed during right-of-way acquisition.

Questions and issues raised included the following:

- How does the property acquisition process work?
- Does the Department or local agency assist with relocation?
- Can a property owner negotiate between multiple appraisals?
- Questions about impacts to individual parcels.

Questions were also raised about the following concerns:

- The relationship of the Department's project to the City of San Pablo's El Portal Drive improvements;
- Fences and walls on El Portal Drive;
- The proposed on-ramp at El Portal Drive;
- Enclosure of the pedestrian overcrossing; and
- The project schedule with regard to property acquisition.

3.3.3. December 3, 2007, Public Information Meeting

The project team hosted a two-part public information meeting on December 3, 2007. The first part of the meeting was in an open house format, and the second was held in conjunction with a San Pablo City Council Study Session. The purposes of the

meeting were to provide the public and the Council with an update on the project and an overview of the proposed alternatives, and to receive public input and comments from the community.

This meeting was advertised in the City of San Pablo Newsletter (the October/November 2007 edition, and the December 2007/January 2008 edition). Bilingual (English and Spanish) notices were sent to over 5,600 residents, businesses and interest groups in the surrounding area (the mailing list included the contacts identified during the development of the PSR/PDS document; see Section 3.1). Press releases were distributed on November 26, 2007, and two local papers (*Contra Costa Times* and *West County Times*) published articles about the project and meeting.

Exhibits about the project were on display during the initial open-house meeting, held at Maples Hall from 6 PM to 7 PM, and project staff members were available for questions. A presentation on the project began at 7 PM in the adjacent City Council Chambers as part of San Pablo City Council's Study Session. Public comments were taken during this period, and due to the level of interest, the open house resumed after the study session for an additional half hour. A Spanish translator participated in the open house and presentation.

Fifty-three people signed into the meeting and many others attended the City Council's Study Session. A range of comments and concerns were noted at the meeting. Some of the repeat questions and issues raised included the following (with answers and other comments noted in italics):

- The changes at McBryde Avenue off-ramp could make traffic worse.
- How would closing of McBryde Avenue off-ramp function, and would drivers understand to take the proposed San Pablo Dam Road exit?
Vehicles would exit westbound I-80 at the San Pablo Dam Road Interchange, travel through the intersection of the off-ramp and San Pablo Dam Road, and proceed along a frontage road to McBryde Avenue. Signage would be placed along the freeway and off-ramp directing traffic.
- El Portal Drive would likely experience heavier traffic with the change in location of the westbound on-ramp.
Traffic will increase on El Portal Drive with the relocation of the off-ramp.
- Alternative 2 (Tight Diamond) was preferred by some, because of the realignment of San Pablo Dam Road away from the China Slide area and because it appeared to address the existing traffic congestion at the intersection of San

Pablo Dam Road and Amador Street

No attendees identified a preference for Alternative 1, Lanes Added.

- Traffic signals should be coordinated and some additional intersections should be considered for signals (e.g., along Amador Street).
- How will traffic be coordinated (remain open) during construction of the new San Pablo Dam Road Overcrossing of I-80?
A construction staging plan will be developed during final design.
- More pedestrian facilities (crosswalks and sidewalks) are needed, including the facilities that are proposed in the project.

3.3.4. July 29, 2008, Presentation of Project to Richmond City Council

On July 29, 2008, CCTA staff presented an update to the Richmond City Council regarding the proposed plans to reconstruct the I-80/San Pablo Dam Road Interchange. Subjects presented included the purpose and need for the project to reduce traffic congestion and improve traffic operations, improvements for bicycle and pedestrian access, and accommodations for future traffic volumes. The planned presentation was included by the City of Richmond in their regularly scheduled City Council meeting agenda, and the meeting minutes were posted on their website (www.ci.richmond.ca.us). No public comments were received.

3.3.5. October 2, 2008, Public Information Meeting

The project team hosted a public meeting on October 2, 2008, from 6:30 PM to 8:30 PM at Riverside Elementary School in San Pablo. The purpose of the meeting was to provide the public with an update on the project, an overview of the proposed alternatives, and to receive public input and comments from the community.

The meeting was announced/advertised with bilingual mailers sent to over 7,500 property owners, residents, and stakeholders in the proposed project vicinity, notifying them of the event and the opportunity to comment in person and in writing. Display advertisements were placed in the City of San Pablo's bimonthly newsletter and two local newspapers (the *Richmond Globe* [a weekly] on September 24, 2008, and the *West County Times* (a daily) on October 1, 2008. An announcement was also posted on the City of Richmond's website.

A total of 78 attendees signed in, and seven submitted comment forms. Exhibits were displayed and a presentation was made, followed by questions and answers.

Similar to the previous public meetings, a range of comments and questions were received and addressed. The following list shows those comments and questions, with project team responses (where appropriate) shown in italics:

- Concern expressed about overnight construction that will impact property owners/residents, and how the right-of-way acquisition process works.
- Preference expressed by some for Alternative 2 (Tight Diamond) because of improvements on Amador Street (that help alleviate backup at Amador Street and San Pablo Dam Road intersection), the ability to turn left from Amador Street onto San Pablo Dam Road, and at the westbound El Portal Road on-ramp. Questions were raised about how access to Amador Street would be improved by Alternative 2.
This access would be improved by separating the Amador Street intersection at San Pablo Dam Road away from the currently adjacent eastbound off-ramp.
- How will a preferred alternative be selected?
The preferred alternative will be selected after the public hearing and receipt of all comments on the environmental document, and consideration of all impacts and benefits of the project alternatives.
- What will happen to the existing recreational vehicle business on San Pablo Dam Road east of I-80?
The portion of the RV business nearest the interchange will be closed; it is already on land owned by Caltrans and the lease to the private business will be allowed to expire or be terminated.
- Would the proposed changes at McBryde Avenue be the same with both Alternatives?
Yes; both alternatives are identical with regard to McBryde Avenue and the westbound interchange facilities.
- How will the on-ramp at westbound San Pablo Dam Road and the frontage road leading to McBryde Avenue function?
Drivers will be able to choose between taking a westbound I-80 on-ramp or staying to their right and traveling on the frontage road to McBryde Avenue. Drivers on San Pablo Dam Road (vehicles traveling from San Pablo Avenue toward I-80) will be able to turn right and either enter the freeway westbound on-ramp or stay right toward McBryde Avenue.
- Will the project change the existing McBryde Avenue/westbound off-ramp intersection or at the Amador Street/McBryde Avenue intersection?
No changes are proposed at this intersection. The existing off-ramp lanes will be

used for the proposed frontage road where it connects with McBryde Avenue. No changes will be made to the McBryde Avenue/Amador Street intersection.

- Consider closing the access to McBryde Avenue because it is used as a “cut-through” by traffic from I-80.

Closing the McBryde Avenue off-ramp completely was initially considered but rejected because of the need expressed to maintain freeway access to this street.

- Will the San Pablo Dam Road Overcrossing of I-80 be higher in elevation than the current structure, and will there be changes to the multiple access points on San Pablo Dam Road from the commercial property parking lots?

The overcrossing will be higher in elevation, and therefore San Pablo Dam Road will be raised on the west side of I-80, requiring reconstruction of the driveway connections from the commercial parking lot area to San Pablo Dam Road. No change will be made to the driveway access points along San Pablo Dam Road.

- Consider a pedestrian/bicycle trail parallel to I-80 and adjacent to the cemetery. *Construction of this trail would require separation from I-80 for safety, and the necessary right-of-way would require considerable land acquisition and retaining wall structures that cannot be cost-effectively included in the project.*
- Consider including a bridge over Wildcat Creek for pedestrian access, and existing trash problems exist at Amador Avenue because people throw trash from the bridge.

A pedestrian bridge over Wildcat Creek on the west side of I-80 would have no current trail connections to any maintained trail facilities and was therefore not considered. The pedestrian overcrossing will be enclosed by a fence on the sides and top, which will preclude anybody from throwing trash on Amador Street.

- Will there be Federal funding of the project, and a request to consider the no project alternative because of the potential current lack of public money, and priorities for using the money for nontransportation uses.

Federal funding is anticipated and needed for this project to proceed. Any State or Federal funding obtained will already be designated for transportation improvements, and cannot be used for nontransportation uses.

3.4. Circulation, Review, and Comment on the Draft Environmental Document

The Draft IS/EA will be distributed for public review and comment, and a public meeting will be held to receive comments, as oral testimony and in writing. The review period and instructions for submitting comments are included on the first page

of this document. After the comment review period ends, a Final IS/EA will be prepared that will contain all comments received and the responses to those comments. If the Final IS/EA is approved, a Mitigated Negative Declaration and a Finding of No Significant Impact will be signed and included with the Final IS/EA.



Chapter 4. List of Preparers

This document and its related technical studies were prepared under the supervision of Caltrans District 4. The Project Development Team (PDT) was responsible for oversight of the project and consists of representatives from Caltrans, CCTA, and the Contra Costa Public Works Department.

Key PDT Members Involved in Project Management

- Laura Hameister, Project Manager, Caltrans District 4
- Bonnita Chow, Senior Transportation Engineer, Caltrans District 4 Design
- Greg McConnell, Senior Environmental Planner, Caltrans District 4
- Sheryl Garcia, Associate Environmental Planner, Caltrans District 4
- Susan Miller, Director, Projects, Contra Costa Transportation Authority
- Hisham Noeimi, Engineering Manager, Contra Costa Transportation Authority
- Adele Ho, City of San Pablo Public Works Director
- John Pulliam, Contra Costa County Department of Public Works
- Sujan Punyamurthula, Contract Manager, URS Corporation
- Ramesh Sathiamurthy, Project Manager, URS Corporation
- Jeff Zimmerman, Environmental Manager, URS Corporation
- Erdal Karataylioglu, Project Engineer, URS Corporation

Individuals Involved in Caltrans Oversight of the Environmental Studies

- Glenn Kinoshita, District Branch Chief Air/Noise Studies – Reviewed Noise and Air Quality
- Brett Rushing, Associate Environmental Planner (Cultural Resources) – Reviewed Cultural Resources
- Connie Yip, Associate Landscape Architect – Reviewed Visual Resources
- Alicia Otani, Associate Environmental Planner (Cultural Resources) – Reviewed Historic Resources
- Ahmad Hashemi, Senior Environmental Planner – Reviewed Wetlands, Biological Assessments, and Natural Environment Study
- Sheryl Garcia, Associate Environmental Planner – Reviewed Community Impact Assessment and Environmental Document
- Gregory McConnell, Senior Environmental Planner – Manager of Caltrans environmental oversight and Environmental Document preparation
- Grant Wilcox, Senior Engineering Geologist – Reviewed Geology

- Ray Boyer, District Branch Chief – Reviewed Hazardous Waste/Initial Site Assessment
- Aman Zareai, Senior Specialist – Reviewed Hydrology/Water Quality
- Vahid Khata-O-Khotan, Transportation Engineer – Reviewed Traffic

Individuals Involved in Technical Studies and Environmental Document Preparation

The following key consulting team staff were responsible for the preparation of the environmental technical studies and the environmental:

Nayan Amin, URS Corporation, M.S., Civil Engineering. Experience in traffic projections, modeling, operation analysis. Contribution: Traffic study and report.

Mike Citro, URS Corporation, M.S., Urban Planning. Experience in land use and community assessments, and regulatory permitting. Contribution: Preparation of Community Impact Assessment.

Chris Colwick, CirclePoint. Community outreach and organization. Contribution: Responsible for community meeting planning/organization and notification.

Brian Hatoff, URS Corporation, M.A., Anthropology. Cultural resource management. Contribution: Senior reviewer and manager of Cultural Resources Studies.

Leah Haygood, Haygood & Associates, specialist in landscape architecture and visual impact assessment. Contribution: Visual Impact Assessment Report.

Jake Henry, URS Corporation, B.S., Geology. Experience in hazardous waste investigations and reporting. Contribution: Phase 1 Site Assessment preparation.

Sarah La Belle, URS Corporation, M.A., Geography. Experience in air quality conformity/studies, environmental document preparation. Contribution: Environmental document preparation and air quality studies.

Rosemary Laird, URS Corporation, M.A., Marine Science. Experience in biological survey preparation. Contribution: Natural Environment Study, California Red-Legged Frog Assessment, and Biological Assessments preparation.

Steve Leach, URS Corporation, M.A., Vegetation Ecology. Experience in conducting biological impact assessments. Contribution: Review of biological resources studies and reports.

Han-Bin Liang, WRECO, Ph.D., Civil Engineering. Contribution: Oversight and review of Storm Water Data Report and Location Hydraulic Study.

Irene Liu, WRECO. Contribution: Preparation of Storm Water Data Report and Location Hydraulic Study.

Dean Martorana, URS Corporation, M.A., Anthropology, Cultural resource management. Contribution: Preparation of Archaeological Survey Report and Historic Properties Survey Report.

Lynn McIntyre, URS Corporation, B.A., Journalism. Contribution: Environmental Document preparation/review.

Stephen Mikesell, JRP Historical Consulting Services, M.A., History. Contribution: Prepared the Historic Architectural Survey Report / Historic Resource Evaluation Report.

Joe Morgan, URS Corporation, B.S., Chemistry. Experience in environmental document preparation and hazardous materials management. Contribution: Phase 1 Site Assessment oversight.

Keith Pommerenck, Illingworth & Rodkin, B.S., Environmental Sciences. Specialist in noise and air quality assessment. Contribution: Noise Impact Report.

Charlene Saito, Haygood & Associates, specialist in visual simulations and impact assessment. Contribution: Assistance on Visual Impact Assessment Report.

Cheri Velzy, URS Corporation, B.S., Meteorology. Experience in air quality analysis. Contribution: Air Quality Report oversight and review.

Stephen Wee, JRP Historical Consulting, LLC, Contribution: Preparation of Historic Resources Evaluation Report.

Jeff Zimmerman, URS Corporation, B.S., Conservation of Natural Resources. Experience in environmental documentation and CEQA/NEPA process. Contribution: Environmental and document project manager.



Chapter 5. Distribution List

The following agencies, organizations, and individuals received printed or electronic copies of this document. Agencies, organizations, and individuals on the project mailing list, which included over 7,500 addresses, were notified of the availability of this document and public meetings as described in Section 3.

Federal Agencies

Federal Highway Administration
650 Capitol Mall
Sacramento, CA 95814

National Marine Fisheries Service
Bay Area Office
777 Sonoma Avenue, Room 325
Santa Rosa, CA 94502

U.S. Army Corp of Engineers
Regulatory Branch
San Francisco District
Attention: CESP-N-CO-R
333 Market Street, 8th Floor
San Francisco, CA 94105

U.S. Department of Agriculture
Natural Resources Conservation
Service
430 G Street, #4164
Davis, CA 95616

U.S. Fish and Wildlife Service
U.S. Department of Interior
2800 Cottage Way, Room W-2605
Sacramento, CA 95825

State Agencies

Executive Director
Office of Planning and Research
State Clearinghouse
1400 Tenth Street
Sacramento, CA 95814

* Agency received document through State
Clearinghouse

California Department of
Conservation*
801 K Street, MS 24-01
Sacramento, CA 95814

California Department of Fish and
Game*
Fisheries, Wildlife, and Environmental
Programs
P.O. Box 47
Yountville, CA 94599

Office of Historic Preservation*
1416 Ninth Street, Room 1442
Sacramento, CA 95814

California Department of Parks and
Recreation*
Resources Management Division
P.O. Box 942896
Sacramento, CA 94296

California Department of Water
Resources*
Reclamation Board
1416 Ninth Street, Room 1601
Sacramento, CA 95814

California Department of Water
Resources*
Environmental Services Office
3251 S Street, Room 111
Sacramento, CA 95816

California Highway Patrol*
Office of Special Projects
2555 1st Avenue
Sacramento, CA 95818

California Resources Agency*
1416 Ninth Street, Suite 1311
Sacramento, CA 95814

California Department of General
Services*
Environmental Services Section
1325 J Street, Suite 1910
Sacramento, CA 95814

California Air Resources Board*
Transportation Projects
1102 Q Street
Sacramento, CA 95812

Integrated Waste Management Board
P.O. Box 4025
Sacramento, CA 95812

California State Water Resources
Control Board*
Division of Water Quality
P.O. Box 100
Sacramento, CA 95812

California Department of Toxic
Substances Control*
700 Heinz Avenue, Suite 200
Berkeley, CA 94710

California Energy Commission
1516 Ninth Street, MS-29
Sacramento, CA 95814

Native American Heritage
Commission*
915 Capitol Mall, Room 364
Sacramento, CA 95814

Public Utilities Commission*
505 Van Ness Avenue
San Francisco, CA 94102

* Agency received document through State
Clearinghouse

California State Lands Commission
100 Howe Avenue, Suite 100 South
Sacramento, CA 95825

Regional

Executive Office, Bruce Wolfe*
Regional Water Quality Control Board
1515 Clay Street, Suite 1400
Oakland, CA 94612

Executive Director, Henry Gardner
Association of Bay Area Governments
101 8th Street
Oakland, CA 94604

Executive Director, Steve Heminger
Metropolitan Transportation
Commission
101 8th Street
Oakland, CA 94604

Executive Officer William Norton
Bay Area Air Quality Management
District*
939 Ellis Street
San Francisco, CA 94109

East Bay Regional Park District
Planning and Stewardship
2950 Peralta Oaks Court, Box 5381
Oakland, CA 94605-0381

Contra Costa County
Department of Conservation and
Development
651 Pine Street, 4th Floor
Martinez, CA 94553

Contra Costa County
Department of Public Works
651 Glacier Drive
Martinez, CA 94553

East Bay Municipal Utility District
375 11th Street
Oakland, CA 94607

West Contra Costa Transportation
Advisory Committee
13831 San Pablo Ave.
San Pablo, CA 94806

AC Transit
1600 Franklin Street
Oakland, CA 94612

Pacific Gas & Electric
Environmental Coordinator
1100 South 27th Street
Richmond, CA 94804

Local

Richard Mitchell, Director of Planning
City of Richmond
1401 Marina Way South
Richmond, CA 94804

Rich Davidson, City Engineer
City of Richmond
1401 Marina Way South
Richmond, CA 94804

Adele Ho, Public Works Director
City of San Pablo
13831 San Pablo Avenue
San Pablo, CA 94806

Bill Savidge, Facilities Operation
Center
West Contra Costa Unified School
District
13000 Potrero Avenue
Richmond, CA 94804

Greg Santiago, Principal
Riverside Elementary School
1300 Amador Street
San Pablo, CA 94806
Contra Costa Community College
26000 Mission Bell Drive
San Pablo, CA 94806

Federal Elected Officials

Honorable Barbara Boxer
United States Senator
1700 Montgomery Street, Suite 240
San Francisco, CA 94111

Honorable Dianne Feinstein
United States Senator
One Post Street, Suite 2450
San Francisco, CA 94104

Honorable George Miller
Representative in Congress, 7th District
220 Blume Drive
San Pablo, CA 94806

State Elected Officials

Nancy Skinner, State Assembly
District 14
1515 Clay Street, Suite 2201
Oakland, CA 94612

Loni Hancock, State Senate District 9
1515 Clay Street, Suite 2202
Oakland, CA 94612

Local Elected Officials

John Gioia, Contra Costa Board of
Supervisors, District 1
117780 San Pablo Ave., Suite D
El Cerrito, CA 94530

Gayle McLaughlin, Mayor
City of Richmond
1401 S. Marina Way
Richmond, CA 94804

Leonard McNeil, Mayor
City of San Pablo
13831 San Pablo Avenue
San Pablo, CA 94806



Chapter 6. References

- Advantage Management Solutions 2007
Value Analysis Study Report, I-80/San Pablo Dam Road Interchange, EA 0A0800, 04-CC-80, PM 3.8/5.71. Prepared for CCTA. November 20.
- ABAG 2007
Jobs/Housing Ratio of the City of San Pablo. Association of Bay Area Governments. URL:
http://www.abag.ca.gov/planning/housingneeds/notes/10-19-06_Agenda_Item_2_-_Jobs-Housing_Balance.pdf
- BAAQMD 2001
San Francisco Bay Area Ozone Attainment Plan. Bay Area Air Quality Management District. URL:
<http://www.baaqmd.gov/pln/plans/ozone/2001/index.htm>. Accessed January 2008.
- BAAQMD 2008
Ambient Air Quality Standards and Bay Area Attainment Status. Updated December 30, 2008 URL:
http://www.baaqmd.gov/pln/air_quality/ambient_air_quality.htm
- California Geological Survey 2000
A General Location Guide for Ultramafic Rocks in California - Areas More Likely to Contain Naturally Occurring Asbestos. Map scale 1:1,100,000. Department of Conservation, Division of Mines and Geology. [Open-File Report 2000-19](#). August. URL: ftp://ftp.consrv.ca.gov/pub/dmg/pubs/ofr/ofr_2000-019.pdf
- Caltrans 1952
McBryde Avenue Overcrossing, Log of Test Borings.
- Caltrans 1954
San Pablo Creek Culvert, Log of Test Borings.
- Caltrans 1956b
San Pablo Dam Road Overcrossing, Log of Test Borings.
- Caltrans 1976
Project Plans for Construction on State Highway In Contra Costa County In San Pablo At San Pablo Creek, About 0.5 Mile North of San Pablo Dam Road Overcrossing.

Caltrans 1983	Memorandum for San Pablo Dam Road Maintenance North.
Caltrans 1984	File 4-CC-80; PM 3.8/4.3 04209-180211, Memorandum on Amador Street Extension on China Slide.
Caltrans 1988	History of China Slide, Subjects and Conditions.
Caltrans 1989	San Pablo Dam Road O.C., Log of Test Borings.
Caltrans 1992	Route I-80 Widening West of Macdonald Avenue to East of San Pablo Dam Rd, 04-CC-80, PM 2.5/4.9, 4225-180251, Figures 2 & 2A, Plan View & Geologic Map.
Caltrans 1993a	Geotechnical and Materials Report, 4-CC-80 PM 2.5/4.9, 4225–180251 From W. of MacDonald Ave. UC to E. of San Pablo Dam Road.
Caltrans 1993b	El Portal Drive UC (Widen), Log of Test Borings.
Caltrans 1994a	McBryde Avenue Overcrossing, Log of Test Borings.
Caltrans 1994b	Riverside Avenue Pedestrian O.C., Log of Test Borings.
Caltrans 1997a	Community Impact Assessment, Caltrans Environmental Handbook Volume 4, Cultural Studies Office, Sacramento.
Caltrans 1997b	Earthquake Retrofit, San Pablo Dam Road Overcrossing, As-built drawings, Sheets 426 through 428.
Caltrans 1997c	Retaining Walls No. ARW#1 & ARW#2, Log of Test Borings.
Caltrans 1997d	Retaining Wall No. 4, Log of Test Borings.
Caltrans 1997e	Sound Walls No. 14, 15 and 16, Log of Test Borings.
Caltrans 1999	Sound Walls No. 1 and 2, Log of Test Borings.
Caltrans' Standard Specifications. 1999	
Caltrans 2003	Storm Water Quality Handbooks, Project Planning and Design Guide: Construction Site Best Management Practices (BMPs) Manual. March. URL:

http://www.dot.ca.gov/hq/construc/stormwater/CSBMPPM_303_Final.pdf.

- Caltrans 2004 Project Study Report. On I-80 in Contra Costa County in the City of San Pablo at the Interstate 80/San Pablo Dam Road Interchange. May.
- Caltrans 2006a Truck Volumes (Annual Average Daily Truck Traffic) on Calif. State Hwys. California Department of Transportation. URL: <http://www.dot.ca.gov/hq/traffops/saferesr/trafdata/> (Accessed June 2008)
- Caltrans 2006b California Department of Transportation. Traffic Noise Analysis Protocol for New Highway Construction, Reconstruction, and Retrofit Barrier Projects. Division of Environmental Analysis, Sacramento, CA. August 14.
- Caltrans 2006c Climate Action Program.
- Caltrans 2007 Traffic and Vehicle Data Systems Unit, 2007 data. <http://traffic-counts.dot.ca.gov/2007all.htm>
- Caltrans 2008a Traffic Accident Surveillance and Analysis System. TASAS report/printout for November 1, 2004 through October 31, 2007.
- Caltrans 2008b Highway Design Manual. Sixth Edition. Last updated July 1, 2008.
- CCTA 2004 Countywide Comprehensive Transportation Plan Update. URL http://www.ccta.net/GM/2004_update.htm. Adopted May 19.
- CCTA 2007a 2007 Congestion Management Program. Contra Costa Transportation Authority (Project #0246 – I-80/San Pablo Dam Road Interchange: Reconstruct). November 21. (<http://ccta.net/files/Final07CMPa2.pdf>)
- CCTA 2007b Measure J Strategic Plan. December. (http://www.ccta.net/PM/MSJ/2007_Measure_J_Strategic_Plan.PDF)

- CGS 2003 Earthquake Fault Zone, Official Map of Richmond
Quadrangle. State of California Department of Conservation,
California Geological Survey.
- CGS 2008 Seismic Hazards Zonation Program on website:
<http://www.conservation.ca.gov/cgs/shzp/Pages/Index.aspx>.
State of California, Department of Conversation, California
Geological Survey.
- City of San Pablo 1996
City of San Pablo General Plan. August.
- City of San Pablo 2008a
Capital Projects Program 2007/08 Budget, Public Works &
Municipal Buildings. Project #483. Public Works Division
(<http://www.ci.san-pablo.ca.us/main/capitalprojects.htm>)
- City of San Pablo 2008b
Current Projects. URL: http://www.ci.san-pablo.ca.us/main/currentprojects.htm#Section_5
- City of San Pablo 2008c
City of San Pablo Website: Healthcare Services.
<http://www.ci.san-pablo.ca.us/main/healthcareservices.htm>
- City-Data.com. No date
San Pablo, CA, profile. URL: <http://www.city-data.com/city/San-Pablo-California.html>.
- Contra Costa County 1990
Land Preservation Plan, “Measure C.”
- Contra Costa County 2005
Contra Costa County General Plan (2005-2020). January 2005.
- Department of Health and Human Services 2007
Poverty Guidelines. URL:
<http://aspe.hhs.gov/POVERTY/07poverty.shtml>

- FHWA 1981 Visual Impact Assessment for Highway Projects. U.S. Department of Transportation, Federal Highway Administration, Office of Environmental Policy. Washington D.C. March.
- FHWA 2006 A Methodology for Evaluating Mobile Source Air Toxic Emissions Among Transportation Project Alternatives. Michael Claggett, Ph.D. and Terry L. Miller, Ph.D., P.E. URL: <http://www.fhwa.dot.gov/environment/airtoxic/msatcompare/msatemissions.htm>
- Garza et al. 1996 Garza, V.J., P. Graney, and D. Sperling. 1996. Transportation Project-Level Carbon Monoxide Protocol. Institute of Transportation Studies, University of California, Davis, Research Report UCD-ITS-RR-96-01. January.
- Graymer et al. 1995 Graymer, R.W., Jones, D.L., and Brabb, E.E., 1995, Geologic map of the Hayward fault zone, Contra Costa, Alameda, and Santa Clara Counties, California: A digital database: U.S. Geological Survey Open-File Report 95-597.
- Governor's Office of Planning and Research 2009
CEQAnet database. URL: <http://www.ceqanet.ca.gov/>. Accessed January 2009.
- Herd 1978 Herd, D.G., Map of Quaternary faulting along the northern Hayward fault zone: U.S. Geological Survey Open-File Report 78-308, eight sheets, scale 1:24,000.
- Haygood and Associates 2009
Visual Resources Impact Report. Interstate 80/San Pablo Dam Road Interchange Project, Contra Costa County, California, 4-CC-80 PM 3.8/5.3, EA 0A0800. Prepared for Caltrans under subcontract to URS. April.
- Hendrix and Cori 2007
Alternative Approaches to Analyze Greenhouse Gas Emissions and Global Climate Change in CEQA Documents. Association of Environmental Professionals. April 27, 2007.

Illingworth and Rodkin 2009

Noise Study Report. Interstate 80/San Pablo Dam Road Interchange Project, Contra Costa County, California, 4-CC-80 PM 3.8/5.3, EA 0A0800. Prepared for Caltrans under subcontract to URS. March.

JRP 2008

Historical Resources Evaluation Report, Interstate 80 / San Pablo Dam Road Interchange Project, Contra Costa County, California, EA 0A0800, 4-CC-80 PM 3.8/5.3. Prepared for Caltrans under subcontract to URS by JRP Historical Consulting, LLC, Davis, CA. July.

Leidy et al. 2005

Leidy, R.A., G.S. Becker, and B.N. Harvey. 2005. Historical distribution and current status of steelhead/rainbow trout (*Oncorhynchus mykiss*) in streams of the San Francisco Estuary, California. Center for Ecosystem Management and Restoration. Oakland, CA.

Lienkaemper and Galehouse 1997

Lienkaemper, J.J., and Galehouse, J.S., 1997, Revised long-term creep rates on the Hayward fault, Alameda and Contra Costa Counties, California, U.S. Geological Survey Open-File Report 97-690, 18 p.

Lienkaemper et al. 1991

Lienkaemper, J.J., Borchardt, G., and Lisowski, M., 1991, Historic creep rate and potential for seismic slip along the Hayward fault, California: *Journal of Geophysical Research*, v. 96, no. B11, p. 18,261-18,283.

MTC 2009

Final Transportation 2035 Plan, consisting of the *Draft Transportation 2035 Plan for the San Francisco Bay Area* and revisions set forth in MTC Resolution 3893, as adopted by the Metropolitan Transportation Commission on April 22, 2009. Metropolitan Transportation Commission. URL: http://www.mtc.ca.gov/planning/2035_plan/DRAFT/Draft_T2035_Plan.pdf. April 22.

- MTC 2007 Air Quality Analysis for the Draft 2009 TIP. URL:
http://bayareacensus.org/funding/tip/2009/draft/ConformityAnalysis_2009TIP_Draft.pdf
- MTC 2008 2009 Transportation Improvement Program. Metropolitan
 Transportation Commission. Adopted by MTC on May 28,
 2008, and adopted by FHWA/FTA on November 17, 2008.
 URL: <http://www.mtc.ca.gov/funding/tip/>
- Nilsen 1975 Nilsen, Tor, H., 1975, Preliminary Photointerpretation Map of
 Landslide and other Surficial Deposits of the Richmond 7 ½
 Quadrangle, Contra Costa and Alameda Counties, California.
- SFRWQCB 1999 East Bay Plain Groundwater Basin, Beneficial Use Evaluation
 Report, Alameda and Contra Costa Counties. Groundwater
 Committee, California Regional Water Quality Control Board,
 San Francisco Bay Region. June. URL:
http://www.waterboards.ca.gov/sanfranciscobay/water_issues/available_documents/ebplain.pdf.
- SFRWQCB 2006 San Francisco Bay Basin (Region 2) Water Quality Control
 Plan (Basin Plan). California Regional Water Quality Control
 Board, San Francisco Bay Region, Oakland, CA. December.
 URL:
<http://www.swrcb.ca.gov/sanfranciscobay/basinplan.shtml>.
- SWRCB 2006 CWA Section 303(d) list of water quality limited segments.
 San Francisco Bay Regional Water Quality Control Board.
 URL:
http://www.swrcb.ca.gov/water_issues/programs/tmdl/docs/303dlists2006/swrcb/r2_final303dlist.pdf.
- URS 2007 URS Corporation. Phase 1 Geologic Hazards Evaluation
 (Final), I-80/San Pablo Dam Road Interchange, unpublished
 letter report prepared for Contra Costa Transportation
 Authority, October.

- URS 2008a Traffic Operations Report. I-80/San Pablo Dam Road Interchange Project, Prepared for Contra Costa Transportation Authority. October.
- URS 2008b Community Impact Assessment, Interstate 80 / San Pablo Dam Road Interchange Project, EA 0A0800, District 4 - CCC - Interstate 80 - PM 3.8-5.3. Prepared for CCTA by URS. May.
- URS 2008c Archaeological Survey Report, Interstate 80/San Pablo Dam Road Interchange Project, Contra Costa County, California, 4-CC-80 PM 3.8/5.3, EA 0A0800. Prepared for Caltrans by URS. July.
- URS 2008d Historic Property Report, Interstate 80/San Pablo Dam Road Interchange Project, Contra Costa County, California, 4-CC-80 PM 3.8/5.3, EA 0A0800. Prepared for Caltrans by URS. July.
- URS 2008e Water Quality Report, Interstate 80/San Pablo Dam Road Interchange Project, Contra Costa County, California, 4-CC-80 PM 3.8/5.3, EA 0A0800. Prepared for Caltrans and CCTA by URS. October.
- URS 2008f Final Preliminary Foundation Report, San Pablo Dam Road Overcrossing (Replace), Interstate 80/San Pablo Dam Road Interchange Project, Contra Costa County, California, 4-CC-80 PM 3.8/5.3, EA 0A0800. Prepared for Caltrans and CCTA by URS. November.
- URS 2008g Hazardous Waste Technical Report, Interstate 80/San Pablo Dam Road Interchange Project, Contra Costa County, California, 4-CC-80 PM 3.8/5.3, EA 0A0800. Prepared for Caltrans by URS. March.
- URS 2008h Mobile Source Air Toxics, Interstate 80/San Pablo Dam Road Interchange Project, Contra Costa County, California, 4-CC-80 PM 3.8/5.3, EA 0A0800. Prepared for Caltrans by URS. October.
- URS 2008i Natural Environment Study. Interstate 80 / San Pablo Dam Road Interchange Project. Contra Costa County, Interstate 80,

- PM 3.8-5.3, EA 0A0800. Prepared for Caltrans District 04. September.
- URS 2008j Biological Assessment. Interstate 80 / San Pablo Dam Road Interchange Project. Contra Costa County, Interstate 80, PM 3.8-5.3, EA 0A0800. Prepared for Caltrans District 04. September.
- URS 2008k Fisheries Biological Assessment. Interstate 80 / San Pablo Dam Road Interchange Project. Contra Costa County, Interstate 80, PM 3.8-5.3, EA 0A0800. Prepared for Caltrans District 04. September.
- URS 2008l URS Corporation. Draft Technical Memorandum—Existing Conditions Traffic Volumes, Operational Analysis and Micro-Simulation Model Calibration, Interstate 80/San Pablo Dam Road Interchange Project. Prepared for Contra Costa County Transportation Authority.
- URS 2008m Final Preliminary Foundation Report, Wildcat Creek Bridge, Interstate 80/San Pablo Dam Road Interchange Project, Contra Costa County, California, 4-CC-80 PM 3.8/5.3, EA 0A0800. Prepared for Caltrans and CCTA by URS. November.
- URS 2008n Final Preliminary Foundation Report, El Portal Drive On-Ramp to Westbound I-80 (Replace), Interstate 80/San Pablo Dam Road Interchange Project, Contra Costa County, California, 4-CC-80 PM 3.8/5.3, EA 0A0800. Prepared for Caltrans and CCTA by URS. December.
- URS 2009a Final Preliminary Foundation Report, Riverside Avenue Pedestrian Overcrossing (Replace), Interstate 80/San Pablo Dam Road Interchange Project, Contra Costa County, California, 4-CC-80 PM 3.8/5.3, EA 0A0800. Prepared for Caltrans and CCTA by URS. January.
- URS 2009b Air Quality Impact Assessment, Interstate 80/San Pablo Dam Road Interchange Project, Contra Costa County, California, 4-

- CC-80 PM 3.8/5.3, EA 0A0800. Prepared for Caltrans by URS. June.
- USGS 2003 United States Geological Survey. Earthquake Probabilities in the San Francisco Bay Region: 2002-2031, By Working Group on California Earthquake Probabilities, Open File Report 03-214.
- U.S. Census Bureau 2000 City of San Pablo, California demographic information through 2000 census. URL: <http://quickfacts.census.gov/>.
- U.S. Department of Transportation 1983 Visual Impact Assessment for Highway Projects.
- WCCTAC 2000 West Contra Costa County Action Plan 2000 Update (Final). West Contra Costa County Transportation Advisory Committee. July. (<http://www.ccta.net/GM/pubs/west-co.pdf>)
- Wise et al. 2007 Wise, S., P. Alexander, and M. Gaul. 2007. Fisheries Habitat Inventory and Assessment for Lower Wildcat Creek. East Bay Regional Park District. February.
- Woodward Clyde Consultants 1978 Phase II Geologic Assessment San Pablo Redevelopment Agency Hillside Neighborhood, San Pablo, California: California Geological Survey CGS CD 2003-01, AP report 727.
- WRECO 2008 Draft Location Hydraulic Study Report, PA/ED Phase. Interstate 80/San Pablo Dam Road Interchange Project, City of San Pablo, Contra Costa County, California. Prepared for Caltrans and CCTA under subcontract to URS by WRECO. August.
- Yahoo Real Estate 2008 San Pablo, CA, real estate search. URL: <http://realestate.yahoo.com/California/San-Pablo>. Accessed March 2008.

Appendix A Project Plans

Layout sheets L-1 through L-6 illustrate the preliminary project plans. Two sets of layout sheets L-2 through L-4 are provided, one for each build alternative, labeled accordingly. Layout sheets L-1, L-5, and L-6 are the same for both alternatives.

ALL COORDINATE DISTANCES AND BEARINGS ARE BASED ON NAD 1983.
ALL ELEVATIONS ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988. (NAVD 1988)

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	CC	80	3.8/5.3	10	40

REGISTERED CIVIL ENGINEER

DATE

PLANS APPROVAL DATE

THE STATE OF CALIFORNIA OR ITS OFFICERS
OR AGENTS SHALL NOT BE RESPONSIBLE FOR
THE ACCURACY OR COMPLETENESS OF ELECTRONIC
COPIES OF THIS PLAN SHEET.

REGISTERED PROFESSIONAL ENGINEER

No.

Exp.

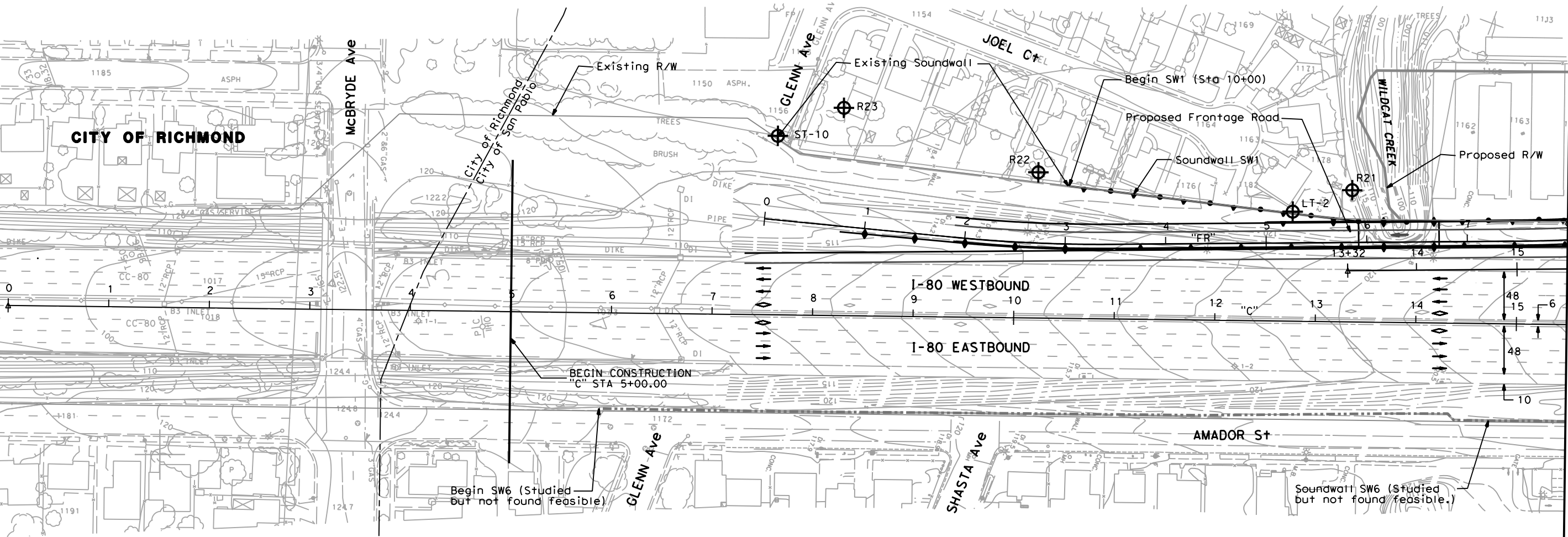
CIVIL

STATE OF CALIFORNIA

URS Corporation
1333 Broadway
Suite 800
Oakland, CA 94612

CCTA
3478 Buskirk Ave
Suite 100
Pleasant Hill, CA 94523

CITY OF SAN PABLO



LEGEND:

- | | |
|---------------------------------------|--|
| Existing R/W | Masonry Wall (Local Street) |
| Proposed R/W | Concrete Barrier |
| Proposed City R/W | Retaining Wall |
| Temporary Construction Easement (TCE) | Soundwall on Barrier |
| Edge of Shoulder | Soundwall on Retaining Wall |
| Edge of Traveled Way | Metal Beam Guard Rail |
| Lane Line | Soundwall studied but not found feasible |
| Sidewalk | Noise Measurement/Receptor(modeled) Location |
| City Masonry Wall | |

PRELIMINARY PLANS
SUBJECT TO REVISION

ALL DIMENSIONS ARE IN
FEET UNLESS OTHERWISE SHOWN
LAYOUT L-1
SCALE: 1"=50'

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	CALCULATED BY DESIGNED BY	CHECKED BY	ERDAL KARATAYLIOGLU	RAMESH SATHIAMURTHY	REVISOR	DATE



Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	CC	80	3.8/5.3	11	40

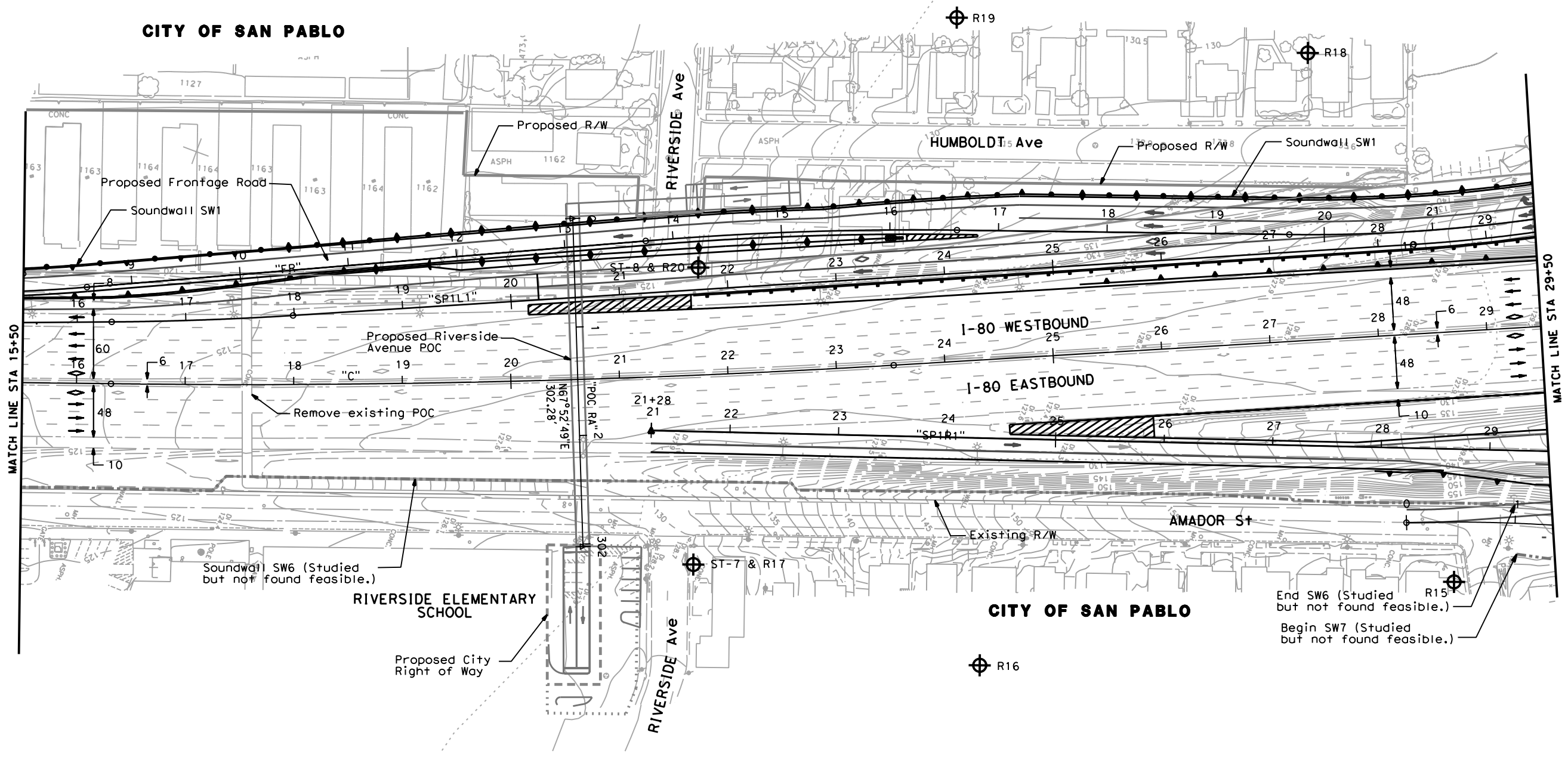
REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

THE STATE OF CALIFORNIA OR ITS OFFICERS
OR AGENTS SHALL NOT BE RESPONSIBLE FOR
THE ACCURACY OR COMPLETENESS OF ELECTRONIC
COPIES OF THIS PLAN SHEET.

URS Corporation
1333 Broadway
Suite 800
Oakland, CA 94612

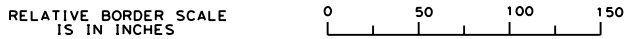
CCTA
3478 Buskirk Ave
Suite 100
Pleasant Hill, CA 94523



PRELIMINARY PLANS
SUBJECT TO REVISION

ALL DIMENSIONS ARE IN
FEET UNLESS OTHERWISE SHOWN
**LAYOUT L-2
ALTERNATIVE 1**
SCALE: 1"=50'

BORDER LAST REVISED 3/1/2007




USERNAME =>erdal_karataylioglu
DGN FILE =>...soundwall exhibits\L-2A.sht

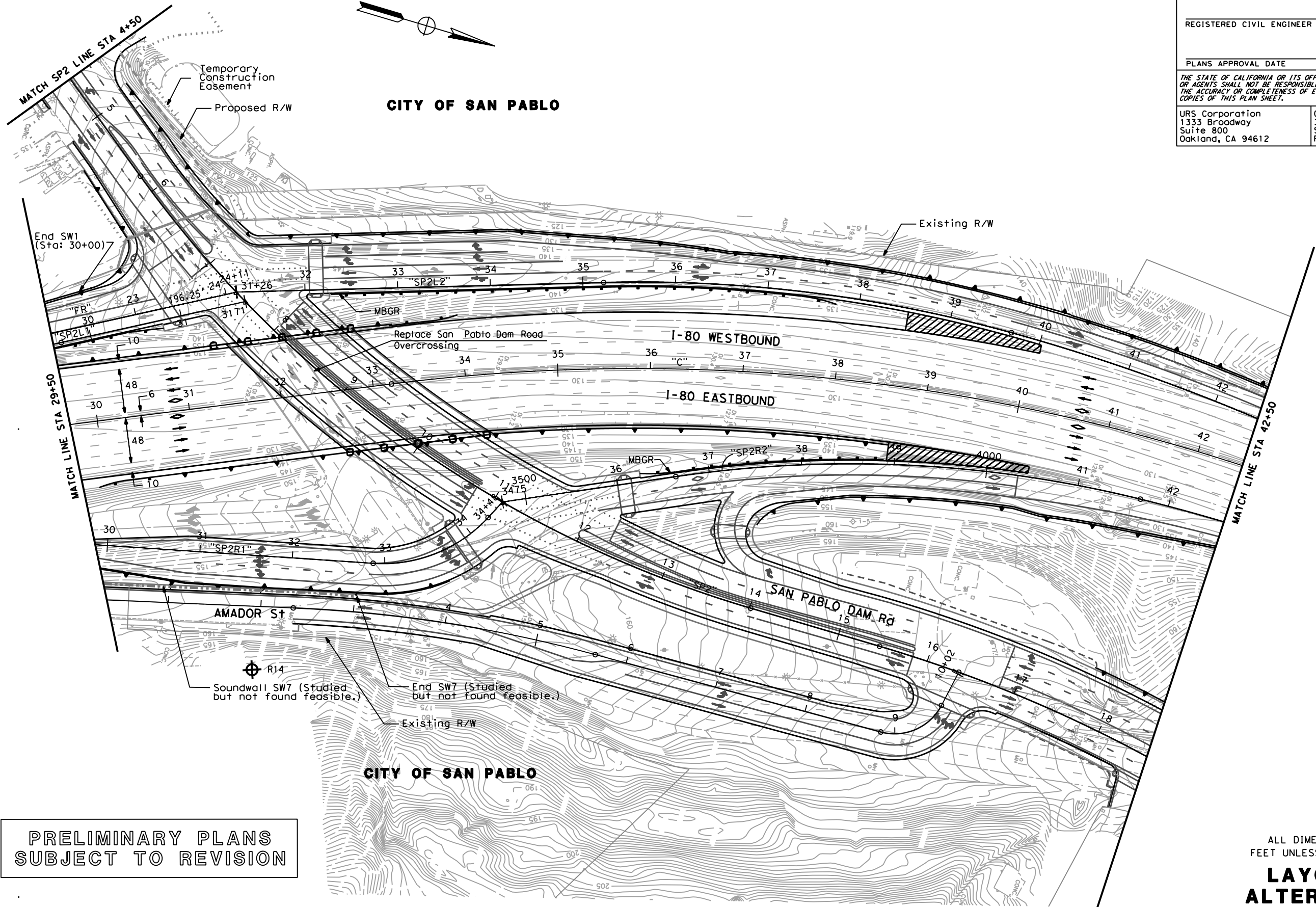
CU 04275

EA 0A0800

LAST REVISION 12-08-08
DATE PLOTTED => 1/23/2009
TIME PLOTTED => 3:31:49 PM

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	CONSULTANT FUNCTIONAL SUPERVISOR	CHECKED BY	ERDAL KARATAYLIOGLU	REVISOR	DATE
ERDAL KARATAYLIOGLU	RAMESH SATHIAMURTHY	REVISOR	DATE	REVISOR	DATE

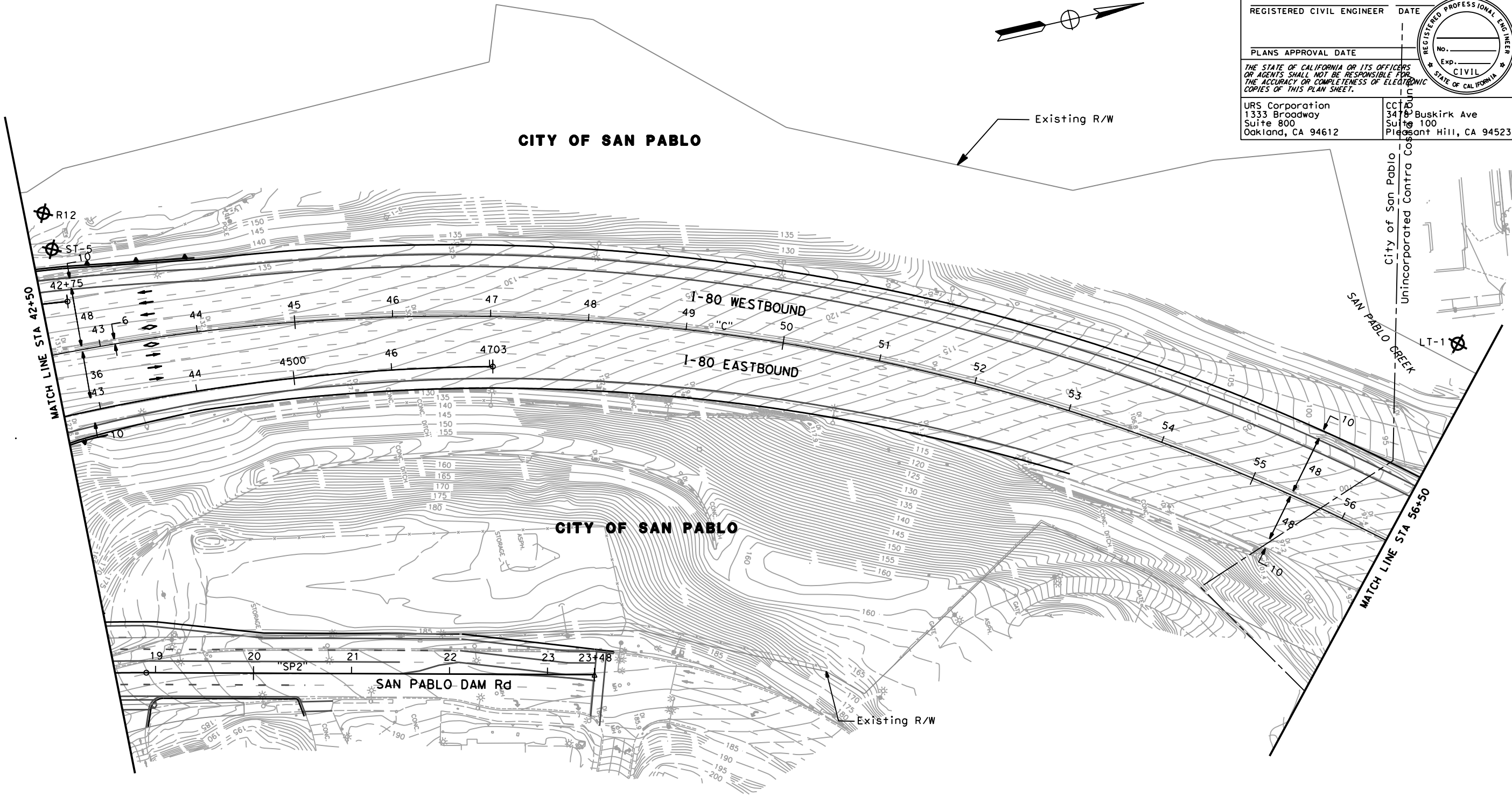
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	CC	80	3.8/5.3	15	40
REGISTERED CIVIL ENGINEER			DATE		
PLANS APPROVAL DATE					
<i>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET.</i>					
URS Corporation 1333 Broadway Suite 800 Oakland, CA 94612			CCTA 3478 Buskirk Ave Suite 100 Pleasant Hill, CA 94523		



PRELIMINARY PLANS
SUBJECT TO REVISION

ALL DIMENSIONS ARE IN
FEET UNLESS OTHERWISE SHOWN
**LAYOUT L-3
ALTERNATIVE 2**
SCALE: 1"=50'

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	CONSULTANT FUNCTIONAL SUPERVISOR	CALCULATED- DESIGNED BY	CHECKED BY	ERDAL KARATAYLIOGLU	RAMESH SATHIAMURTHY	REVISED BY	DATE REVISED



PRELIMINARY PLANS
SUBJECT TO REVISION

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	CC	80	3.8/5.3	16	40

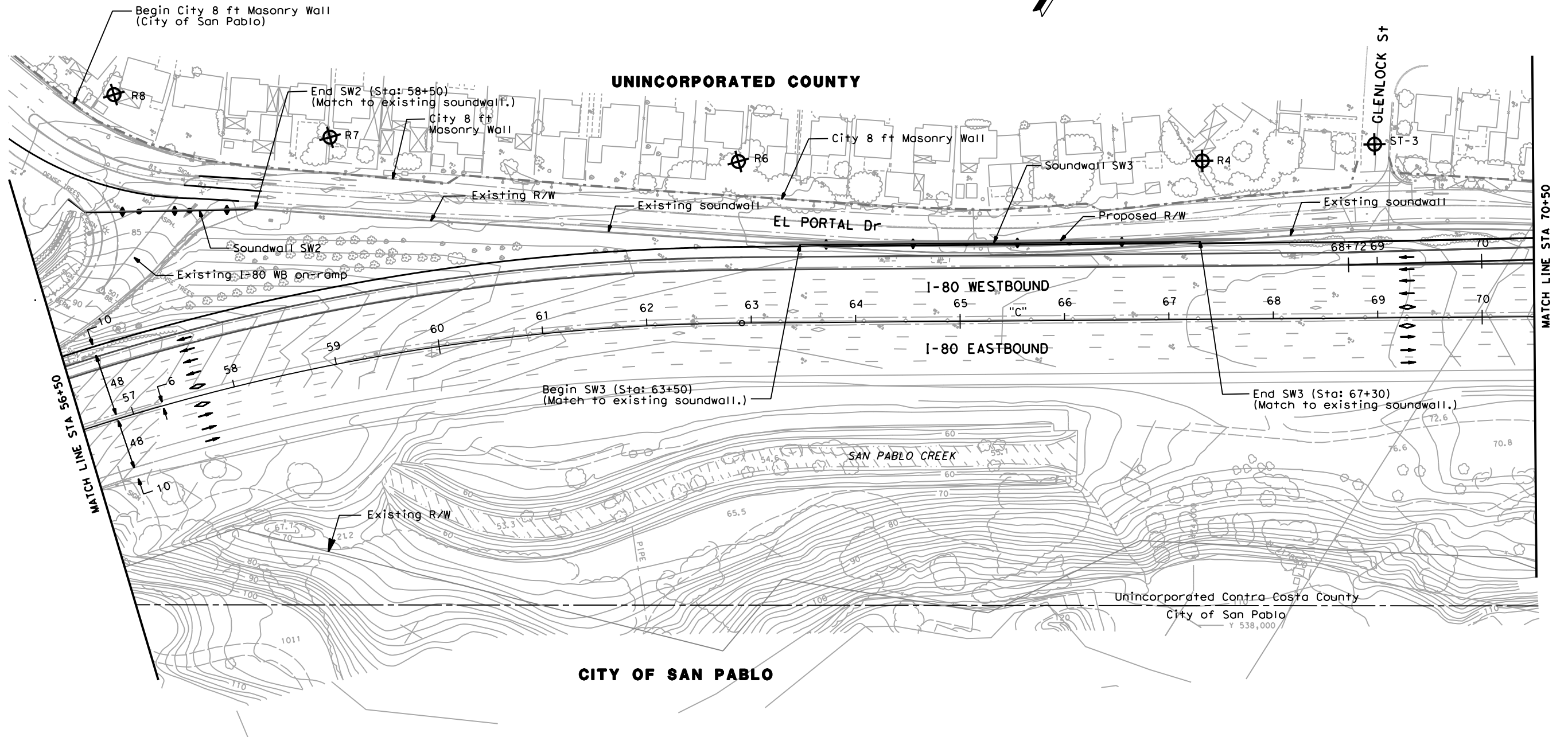
REGISTERED CIVIL ENGINEER	DATE
PLANS APPROVAL DATE	
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET.	
URS Corporation 1333 Broadway Suite 800 Oakland, CA 94612	CCTA 3478 Buskirk Ave Suite 100 Pleasant Hill, CA 94523



ALL DIMENSIONS ARE IN
FEET UNLESS OTHERWISE SHOWN
LAYOUT L-4
ALTERNATIVE 2
SCALE: 1"=50'

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	CC	80	3.8/5.3	17	40

REGISTERED CIVIL ENGINEER	DATE
PLANS APPROVAL DATE	
<i>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET.</i>	
URS Corporation 1333 Broadway Suite 800 Oakland, CA 94612	CCTA 3478 Buskirk Ave Suite 100 Pleasant Hill, CA 94523



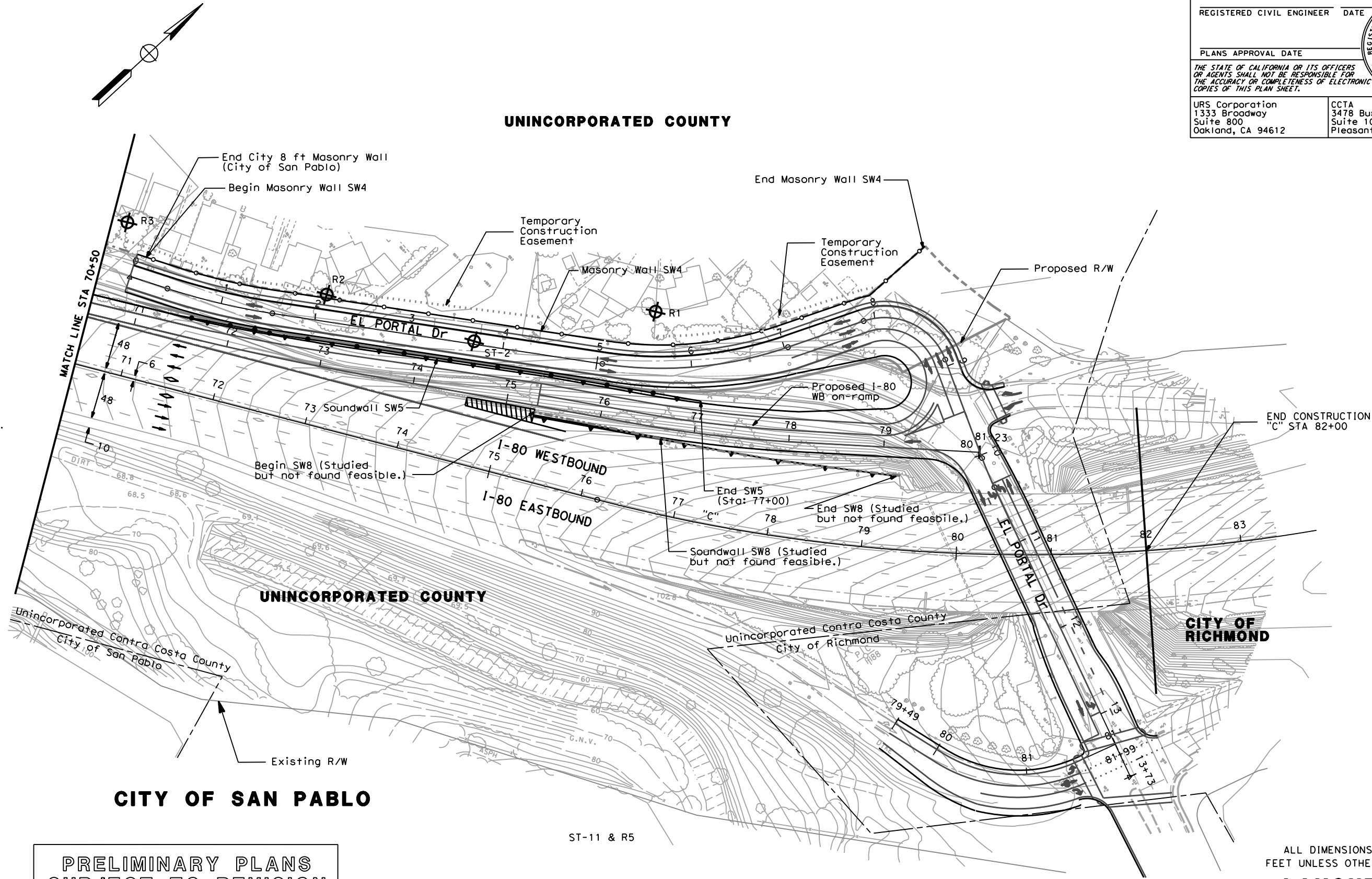
PRELIMINARY PLANS
SUBJECT TO REVISION

ALL DIMENSIONS ARE IN
FEET UNLESS OTHERWISE SHOWN

LAYOUT L-5

SCALE: 1"=50'

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	CONSULTANT FUNCTIONAL SUPERVISOR	CALCULATED BY DESIGNED BY	CHECKED BY	ERDAL KARATAYLIOGLU	RAMESH SATHIAMURTHY	REVISED BY	DATE REVISED



PRELIMINARY PLANS
SUBJECT TO REVISION

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	CC	80	3.8/5.3	18	40

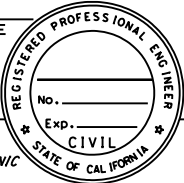
REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

THE STATE OF CALIFORNIA OR ITS OFFICERS
OR AGENTS SHALL NOT BE RESPONSIBLE FOR
THE ACCURACY OR COMPLETENESS OF ELECTRONIC
COPIES OF THIS PLAN SHEET.

URS Corporation
1333 Broadway
Suite 800
Oakland, CA 94612

CCTA
3478 Buskirk Ave
Suite 100
Pleasant Hill, CA 94523



ALL DIMENSIONS ARE IN
FEET UNLESS OTHERWISE SHOWN
LAYOUT L-6
SCALE: 1"=50'

Appendix B CEQA Checklist

Supporting documentation of all CEQA checklist determinations is provided in Chapter 2 of this Initial Study/Environmental Assessment. Documentation of “No Impact” determinations is provided at the beginning of Chapter 2. Discussion of all impacts, avoidance, minimization, and/or mitigation measures is under the appropriate topic headings in Chapter 2.

The CEQA impact levels in the following checklist include potentially significant impact, less-than-significant impact with mitigation, less-than-significant impact, and no impact. Please refer to the following for detailed discussions regarding impacts:

- Guidance: Title 14, Chapter 3, California Code of Regulations, Sections 15000 et seq. (http://www.ceres.ca.gov/topic/env_law/ceqa/guidelines/)
- Statutes: Division 13, California Public Resources Code, Sections 21000-21178.1 (http://www.ceres.ca.gov/topic/env_law/ceqa/stat/)

Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
--------------------------------	--	------------------------------	-----------

AESTHETICS - Would the project:

a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic building within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

AGRICULTURE RESOURCES - In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:

a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to nonagricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to nonagricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

AIR QUALITY - Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:

a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
---	--------------------------	--------------------------	--------------------------	-------------------------------------

Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
--------------------------------	--	------------------------------	-----------

b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	-------------------------------------	--------------------------

c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable Federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
--------------------------	--------------------------	--------------------------	-------------------------------------

d) Expose sensitive receptors to substantial pollutant concentration?

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	-------------------------------------	--------------------------

e) Create objectionable odors affecting a substantial number of people?

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	-------------------------------------	--------------------------

BIOLOGICAL RESOURCES - Would the project:

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	-------------------------------------	--------------------------	--------------------------

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
--------------------------	--------------------------	--------------------------	-------------------------------------

c) Have a substantial adverse effect on Federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
--------------------------	--------------------------	--------------------------	-------------------------------------

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	-------------------------------------	--------------------------

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
--------------------------	--------------------------	--------------------------	-------------------------------------

Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
--------------------------------	--	------------------------------	-----------

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
--------------------------	--------------------------	--------------------------	-------------------------------------

CULTURAL RESOURCES - Would the project:

a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
--------------------------	--------------------------	--------------------------	-------------------------------------

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
--------------------------	--------------------------	--------------------------	-------------------------------------

c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
--------------------------	--------------------------	--------------------------	-------------------------------------

d) Disturb any human remains, including those interred outside of formal cemeteries?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
--------------------------	--------------------------	--------------------------	-------------------------------------

GEOLOGY AND SOILS - Would the project:

a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	-------------------------------------	--------------------------

i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	-------------------------------------	--------------------------

ii) Strong seismic ground shaking?

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	-------------------------------------	--------------------------

iii) Seismic-related ground failure, including liquefaction?

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	-------------------------------------	--------------------------

iv) Landslides?

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	-------------------------------------	--------------------------

b) Result in substantial soil erosion or the loss of topsoil?

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	-------------------------------------	--------------------------

c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	-------------------------------------	--------------------------

Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
--------------------------------	--	------------------------------	-----------

d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property.

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	-------------------------------------	--------------------------

e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
--------------------------	--------------------------	--------------------------	-------------------------------------

HAZARDS AND HAZARDOUS MATERIALS –

Would the project:

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
--------------------------	--------------------------	--------------------------	-------------------------------------

b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	-------------------------------------	--------------------------

c) Emit hazardous emissions or handle hazardous or acutely hazardous material, substances, or waste within one-quarter mile of an existing or proposed school?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
--------------------------	--------------------------	--------------------------	-------------------------------------

d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
--------------------------	--------------------------	--------------------------	-------------------------------------

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
--------------------------	--------------------------	--------------------------	-------------------------------------

f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
--------------------------	--------------------------	--------------------------	-------------------------------------

g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	-------------------------------------	--------------------------

h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
--------------------------	--------------------------	--------------------------	-------------------------------------

Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
--------------------------------	--	------------------------------	-----------

HYDROLOGY AND WATER QUALITY - Would be the project:

a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Place housing within a 100-year flood hazard area as mapped on a Federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
j) Inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
--------------------------------	--	------------------------------	-----------

LAND USE AND PLANNING - Would be the project:

a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

MINERAL RESOURCES - Would the project:

a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

NOISE - Would the project:

a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
--------------------------------	--	------------------------------	-----------

f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
--------------------------	--------------------------	--------------------------	-------------------------------------

POPULATION AND HOUSING - Would the project:

a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
--------------------------	--------------------------	--------------------------	-------------------------------------

b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	-------------------------------------	--------------------------

c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	-------------------------------------	--------------------------

PUBLIC SERVICES -

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

Fire protection?

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	-------------------------------------	--------------------------

Police protection?

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	-------------------------------------	--------------------------

Schools?

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	-------------------------------------	--------------------------

Parks?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
--------------------------	--------------------------	--------------------------	-------------------------------------

Other public facilities?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
--------------------------	--------------------------	--------------------------	-------------------------------------

RECREATION -

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
--------------------------	--------------------------	--------------------------	-------------------------------------

Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
--------------------------------	--	------------------------------	-----------

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
--------------------------	--------------------------	--------------------------	-------------------------------------

TRANSPORTATION/TRAFFIC - Would be the project:

a) Cause an increase in traffic which his substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	-------------------------------------	--------------------------

b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	-------------------------------------	--------------------------

c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
--------------------------	--------------------------	--------------------------	-------------------------------------

d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incomplete uses (e.g., farm equipment)?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
--------------------------	--------------------------	--------------------------	-------------------------------------

e) Result in inadequate emergency access?

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	-------------------------------------	--------------------------

f) Result in inadequate parking capacity?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
--------------------------	--------------------------	--------------------------	-------------------------------------

g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
--------------------------	--------------------------	--------------------------	-------------------------------------

UTILITY AND SERVICE SYSTEMS - Would be the project:

a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
--------------------------	--------------------------	--------------------------	-------------------------------------

b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
--------------------------	--------------------------	--------------------------	-------------------------------------

c) Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
--------------------------	--------------------------	--------------------------	-------------------------------------

Potentially significant impact	Less than significant impact with mitigation	Less than significant impact	No impact
--------------------------------	--	------------------------------	-----------

d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
--------------------------	--------------------------	--------------------------	-------------------------------------

e) Result in determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
--------------------------	--------------------------	--------------------------	-------------------------------------

f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
--------------------------	--------------------------	--------------------------	-------------------------------------

g) Comply with Federal, state, and local statutes and regulations related to solid waste?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
--------------------------	--------------------------	--------------------------	-------------------------------------

MANDATORY FINDINGS OF SIGNIFICANCE -

a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, or cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	-------------------------------------	--------------------------	--------------------------

b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	-------------------------------------	--------------------------

c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	-------------------------------------	--------------------------

Appendix C Title VI Policy Statement

STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY

ARNOLD SCHWARZENEGGER, Governor

DEPARTMENT OF TRANSPORTATION
OFFICE OF THE DIRECTOR
1120 N STREET
P. O. BOX 942873
SACRAMENTO, CA 94273-0001
PHONE (916) 654-5266
FAX (916) 654-6608
TTY (916) 653-4086



*Flex your power!
Be energy efficient!*

January 14, 2005

TITLE VI POLICY STATEMENT

The California Department of Transportation under Title VI of the Civil Rights Act of 1964 and related statutes, ensures that no person in the State of California shall, on the grounds of race, color, national origin, sex, disability, and age, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity it administers.

A handwritten signature in black ink, appearing to read "Will Kempton".

WILL KEMPTON
Director



Appendix D Summary of Relocation Benefits

I. Important Relocation Assistance Information

The following explanation is general in nature and is not intended to be a complete statement of Federal and State relocation laws and regulations. Any questions concerning relocation should be addressed to the California Department of Transportation (Caltrans). Any persons to be displaced will be assigned to a relocation advisor, who will work closely with each displacee in order to see that all payments and benefits are fully utilized, and that all regulations are observed, thereby avoiding the possibility of displacees jeopardizing or forfeiting any of their benefits or payments.

At the time of the first written offer to purchase, owner-occupants are given a detailed explanation of Caltrans' relocation services. Tenant occupants of properties to be acquired are contacted soon after the first written offer to purchase, and also are given a detailed explanation of the Caltrans Relocation Program. To avoid loss of possible benefits, no individual, family, business, farm, or nonprofit organization should commit to purchase or rent a replacement property without first contacting a Caltrans relocation advisor.

II. Relocation Assistance Advisory Services

In accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, Caltrans will provide relocation advisory assistance to any person, business, farm or nonprofit organization displaced as a result of the acquisition of real property for public use. Caltrans will assist displacees in obtaining comparable replacement housing by providing current and continuing information on the availability and prices of both houses for sale and rental units that are "decent, safe and sanitary." Nonresidential displacees will receive information on comparable properties for lease or purchase. (For business, farm, and nonprofit organization relocation services, see Section IV.)

Residential replacement dwellings will be in equal or better neighborhoods at rents or prices within the financial ability of the individuals and families displaced, and reasonably accessible to their places of employment. Before any displacement occurs, comparable replacement dwellings that are open to all persons regardless of race, color, religion, sex, and national origin, and which are consistent with the

requirements of Title VIII of the Civil Rights Act of 1968, will be offered to displacees. This assistance will also include the supply of information concerning Federal and State assisted housing programs, and any other known services being offered by public and private agencies in the area.

Persons who are eligible for relocation payment(s) and who are legally occupying a property required for the project will not be asked to move without first being given at least 90 days written notice, and not unless at least one decent, safe and sanitary replacement residence, available on the market, is offered to them by Caltrans.

III. Residential Relocation Payments Program

The Relocation Payment Program will help eligible residential occupants by paying certain costs and expenses. These costs are limited to those necessary for or incidental to the purchase or rental of the replacement dwelling and actual reasonable moving expenses to a new location within 50 miles of the displacement property. Any actual moving costs in excess of the 50 miles are the responsibility of the displacee. The Residential Relocation Program can be summarized as follows:

Moving Costs

Any displaced person who lawfully occupied the acquired property, regardless of the length of occupancy in the property acquired, will be eligible for reimbursement of moving costs. Displacees will receive either the actual reasonable costs involved in moving themselves and personal property up to a maximum of 50 miles, or a fixed payment based on a fixed moving cost schedule.

Purchase Supplement

In addition to moving and related expense payments, fully eligible homeowners may be entitled to payments for increased costs of replacement housing.

Homeowners who have owned and occupied their property for 180 days or more prior to the date of the first written offer to purchase the property, may qualify to receive a price differential payment and may qualify to receive reimbursement for certain nonrecurring costs incidental to the purchase of the replacement property. An interest differential payment is also available if the interest rate for the loan on the replacement dwelling is higher than the loan rate on the displacement dwelling, subject to certain limitations on reimbursement based upon the replacement property interest rate. The maximum combination of these three supplemental payments that the owner-occupant can receive is \$22,500. If the total entitlement (without the

moving payments) is in excess of \$22,500, the Last Resort Housing Program will be used. (See the explanation of the Last Resort Housing Program below.)

Rental Supplement

Tenants who have occupied the property to be acquired by Caltrans for 90 days or more and owner/occupants of 90-179 days prior to the date of the first written offer to purchase may qualify to receive a rental differential payment. This payment is made when Caltrans determines that the cost to rent a comparable “decent, safe, and sanitary” replacement dwelling will be more than the present rent of the displacement dwelling. As an alternative, the tenant may qualify for a down payment benefit designed to assist in the purchase of a replacement property and the payment of certain costs incidental to the purchase, subject to certain limitations noted below under the Down Payment section. The maximum amount payable to any tenant of 90 days or more and any owner-occupant of 90-179 days, in addition to moving expenses, is \$5,250. If the total entitlement for rental supplement exceeds \$5,250, the Last Resort Housing will be used.

In addition to the occupancy requirements, in order to receive any relocation benefits, the displaced person must buy or rent and occupy a “decent, safe, and sanitary” replacement dwelling within one year from the date the department takes legal possession of the property, or from the date the displacee vacates the displacement property, whichever is later.

Down Payment

The down payment option has been designed to aid owner occupants of 90-179 days and tenants with no less than 90 days of continuous occupancy prior to Caltrans’ first written offer. The down payment and incidental expenses cannot exceed the maximum payment of \$5,250. The one year eligibility period in which to purchase and occupy a “decent, safe, and sanitary” replacement dwelling will apply.

Last Resort Housing

Federal regulations (49 CFR 24) contain the policy and procedure for implementing the Last Resort Housing Program on Federal-aid projects. Last resort housing benefits are, except for the amounts of payments and the methods in making them, the same as those benefits for standard residential relocation, as explained above. Last resort housing has been designed primarily to cover situations where a displacee cannot be relocated because of lack of available comparable replacement housing, or when the anticipated replacement housing payments exceed the \$5,250 and \$22,500 limits of

the standard relocation procedure, because either the displacee lacks the financial ability or other valid circumstances. In certain exceptional situations, Last Resort Housing may also be used for tenants of less than 90 days.

Other Relocation Information

After the first written offer to acquire the property has been made, Caltrans will, within a reasonable length of time, personally contact the displacees to gather important information, including the following:

- Preferences in area of relocation;
- Number of people to be displaced and the distribution of adults and children according to age and sex;
- Location of school and employment;
- Specific arrangements needed to accommodate any family members' special needs;
- Financial ability to relocate into comparable replacement dwelling that will adequately house all members of the family.

IV. The Nonresidential Relocation Assistance Program

The Nonresidential Relocation Assistance Program provides assistance to businesses, farms, and nonprofit organizations in locating suitable replacement property, and reimbursement for certain costs involved in relocation. The Relocation Advisory Assistance Program will provide current lists of properties offered for sale or rent, suitable for a particular business's specific relocation needs. The types of payments available to eligible businesses, farms, and nonprofit organizations are moving and searching expenses, and possibly reestablishment expenses or a fixed in-lieu payment instead of any moving, searching, and reestablishment expenses. The payment types can be summarized as follows:

Moving Expenses

Moving expenses may include the following actual, reasonable costs:

- The moving of inventory, machinery, equipment, and similar business-related property; dismantling, disconnecting, crating, packing, loading, insuring, transporting, unloading, unpacking, and reconnecting of personal property.
- Loss of tangible personal property provides payment for actual, direct loss of personal property that the owner is permitted not to move.

- Expenses related to searching for a new business site, up to \$1,000 for reasonable expenses actually incurred.

V. Important Notice

To avoid loss of possible benefits, no individual, family, business, farm or nonprofit organization should commit to purchase or rent a replacement property without first contacting a Department of Transportation relocation advisor at:

State of California
Department of Transportation, District #4
111 Grand Avenue
Oakland, CA 94612



Appendix E Glossary of Technical Terms

This appendix briefly explains the technical terms and names used in this IS/EA. Appendix G provides a list of acronyms.

Best Management Practice (BMP)	Any program, technology, process, operating method, measure or device that controls, prevents, removes or reduces pollution.
Basin Plan	A specific plan for control of water quality within one of the nine hydrologic basins of the State under the regulation of a Water Quality Control Board.
Cumulative effects	Project effects that are related to other actions with individually insignificant but cumulatively significant impacts.
Decibel	A numerical expression of the relative loudness of a sound.
Encroachment (floodplain)	An action within the limits of the 100-year floodplain.
Endangered	Plant or animal species that are in danger of extinction throughout all or a significant portion of its range.
Erosion	The wearing away of the land surface by running water, wind, ice, or other geological agents.
Federal Register	Federal publication that provides official notice of Federal administrative hearings and issuance of proposed and final Federal administrative rules and regulations.
Floodplain (100-year)	The area subject to flooding by a flood or tide that has a one percent chance of being exceeded in any given year.
FONSI	Finding of No Significant Effect, issued by FHWA upon approval of the NEPA review process
Habitat	The place or type of site where a plant or animal naturally or normally lives and grows.
Hectare	A unit of surface measure in the metric system, equal to 10,000 square meters.
Initial Study (IS)	Environmental review document prepared to comply with CEQA

Initial Site Assessment (ISA)	A Department of Transportation term for an initial study to determine hazardous waste issues on a project.
L_{eq}	A unit used for evaluation of sound impacts, L_{eq} is the measurement of the fluctuating sound level received by a receptor averaged over a time interval (usually one hour).
Level of Service (LOS)	A measurement of capacity of a roadway.
Mitigation	Compensation for an impact by replacement or provision of substitute resources or environments. Mitigation can include avoiding an impact by not taking a certain action, minimizing impacts by limiting the degree of an action, or rectifying an impact by repairing or restoring the affected environment.
Negative Declaration (ND)	Issued upon approval of the environmental review process under CEQA
NPDES	National Pollutant Discharge Elimination System. A permit regulated by the Regional Water Quality Control Board that is required if more than one acre of original ground is graded. One condition of this permit is that the contractor must submit a Storm Water Pollution Prevention Plan (SWPPP), which is similar to the Water Pollution Control Plan required by Caltrans' Standard Specification 7-1.01G.
Practicable	An action that is capable of being done after taking into consideration cost, existing technology and logistics in light of overall project purposes.
Receptors	Term used in air quality and noise studies that refers to houses or businesses that could be affected by a project.
Regulatory agency	An agency that has jurisdiction by law.
Responsible agency	A public agency other than the Lead Agency that has responsibility for carrying out or approving a project under CEQA.
Right-of-way	A general term denoting land, property, or interest therein, usually in a strip, acquired for or devoted to transportation purposes.

Riparian	Pertaining to the banks and other adjacent terrestrial (as opposed to aquatic) environs of freshwater bodies, watercourses, estuaries, and surface-emergent aquifers, whose transported freshwater provides soil moisture sufficient in excess of that available through local precipitation to potentially support the growth of vegetation.
RTP	Regional Transportation Plan, prepared by the Metropolitan Transportation Commission (MTC), the regional agency responsible for transportation planning and funding.
Special-status species	Plant or animal species that are either (1) Federally listed, proposed for or a candidate for listing as threatened or endangered; (2) bird species protected under the Federal Migratory Bird Treaty Act; (3) protected under State endangered species laws and regulations, plant protection laws and regulations, Fish and Game codes, or species of special concern listings and policies; (4) recognized by national, State, or local environmental organizations (e.g., California Native Plant Society).
STIP	The State Transportation Improvement Program, updated every two years, is the California Transportation Commission's priorities for improvements on and off the State highway system.
SWPPP	A Storm Water Pollution Prevention Plan is prepared to evaluate sources of discharges and activities that may affect stormwater runoff, and implement measures or practices to reduce or prevent such discharges.
Threatened	A species that is likely to become endangered in the foreseeable future in the absence of special protection.
Waters of the United States	As defined by the USACE in 33 Code of Federal Regulations 328.3(a): <ol style="list-style-type: none"> 1. All waters that are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters that are subject to the ebb and flow of the tide; 2. All interstate waters including interstate wetlands; 3. All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction

of which could affect interstate or foreign commerce, including any such waters:

- (i) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or
 - (ii) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
 - (iii) Which are used or could be used for industrial purposes by industries in interstate commerce;
- 4. All impoundment of waters otherwise defined as waters of the United States under this definition;
 - 5. Tributaries of waters identified in paragraphs 1-4;
 - 6. The territorial seas;
 - 7. Wetlands adjacent to waters (waters that are not wetlands themselves) identified in paragraphs 1-6.

Wetlands

When used in a formal context, such as in this IS/EA, wetlands are areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances will support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas [33 CFR 328.3(b)].

Appendix F Minimization and/or Mitigation Summary

This appendix summarizes the minimization and/or mitigation measures discussed in Chapter 2. Section F.1 lists avoidance and minimization measures, and Section F.2 lists mitigation measures, which are above and beyond standard construction contract requirements. Mitigation is provided for relocations and potential effects to threatened and endangered species. Section F.3 contains a completed draft of the Department form “Summary of Required Permits and Environmental Commitments—PS&E Phase.” The form identifies the avoidance, minimization, and mitigation measures that must be incorporated into the plans, specifications, and estimates (PS&E) for the proposed project, along with the timing and the party responsible for each action.

F.1 Avoidance and Minimization Measures

Land Use

- Reconstruction of the proposed pedestrian overcrossing will be timed in consultation with the school district to avoid school sessions to the extent possible, although the school is in session throughout most of the year.
- Riverside Elementary School staff and parents will be given notice well in advance of construction to adequately inform them of the construction plans and timing.
- The pedestrian overcrossing will be designed so that Riverside Elementary School staff can lock a gate preventing entrance to school property while still allowing continued public access between the overcrossing landing and Amador Street.
- Reconstruction of the overcrossing prior to reconstruction of the I-80/San Pablo Dam Road Interchange will be investigated and considered during final design and planning for construction staging.

Community Impacts

Community Character and Cohesion

- Temporary pedestrian access impacts during construction will be minimized by the measures outlined for Land Use effects (Section 2.1.4).
- The Department and CCTA will determine final impacts to any parking areas at the businesses bordering San Pablo Dam Road on the west side of I-80 and will either reconfigure the striping/layout of the existing parking lot or provide

compensation for loss of parking. These steps will take place during the right-of-way and final design stages of project development.

Visual/Aesthetics

The following measures are recommended for the proposed project:

Project Feature	Mitigation
Soundwalls and Retaining Walls	Architectural treatment of soundwalls and retaining walls should match other walls adjacent to the project. Wall surfaces should have an aesthetic treatment to reduce glare and visual monotony.
Replacement Planting	Replacement planting will help blend the project into the community, provide screening of highway features, and provide permanent slope stabilization. Vine planting to soften walls and control graffiti should be accommodated where possible. An emphasis on tree planting should be accommodated wherever possible. Tall evergreen trees should be considered for replacement planting in locations where existing large-scale trees are removed for the project.
Locations of Special Interest	Rollingwood Drive, Humboldt Avenue, and Amador Street are locations where the visual impacts from the project are predicted to have the highest viewer sensitivity. Special attention to accommodating the above recommendations should be paid to these areas, with emphasis on the following priorities: <ul style="list-style-type: none">○ Rollingwood Drive, Amador Street: Add trees or shrubs wherever possible to screen views of roadway and restore views of existing trees.○ Humboldt Avenue: As replacement planting will not be possible along the side of the new soundwall facing the community, aesthetic wall treatments should be emphasized.

Cultural Resources

- Additional surveys will be required if the project changes to include areas not previously surveyed.
- If cultural materials are discovered during construction, all earth-moving activity within and around the immediate discovery area will be diverted until a qualified archaeologist can assess the nature and significance of the find.
- If human remains are discovered, California Health and Safety Code Section 7050.5 states that further disturbances and activities will cease in any area or nearby area suspected to overlie remains, and the County Coroner contacted. Pursuant to California Public Resources Code Section 5079.98, if the remains are thought to be Native American, the coroner will notify the Native American Heritage Commission who will then notify the Most Likely Descendent. At this time, the person who discovered the remains will contact the District Environmental Branch so that they may work with the Most Likely Descendent

on the respectful treatment and disposition of the remains. Further provisions of California Public Resources Code Section 5097.98 are to be followed as applicable.

Water Quality and Stormwater Runoff

Permanent erosion control best management practices (BMPs) will be included in the project, including feasible temporary (short-term) and permanent (long-term) BMPs. The required Storm Water Pollution Prevention Plan (SWPPP) will include stormwater BMPs for temporary soil stabilization and sediment control.

Temporary (Short-term) BMPs

- Riparian areas in the channels of San Pablo and Wildcat creeks in the project area will be identified as environmentally sensitive areas (ESAs) for protection as necessary with high-visibility fencing and erosion control.
- Stabilized construction entrances/exits will be used to prevent the tracking of mud and dirt off-site.
- Temporary BMPs will be implemented during project construction to comply with the NPDES conditions and will meet Caltrans Best Available Technology/Best Conventional Technology for construction projects. The most effective BMPs that can be used to minimize erosion include:
 - Preserving existing vegetation;
 - Avoiding or minimizing work during the rainy season (May to October) and during any rainfall events or immediately following precipitation when the ground surface is wet;
 - Limiting the amount and length of exposure of graded soil and soil stockpiles; and
 - Protecting exposed spoils through the use of mulches or erosion control blankets/mats.
- Temporary erosion control and water quality measures will be defined in detail in the project SWPPP and designated as line items in the plans, specifications, and estimates.
- Table 2.9-1 lists the minimum requirements to be implemented during project construction.

Permanent (Long-term) BMPs

- Permanent (post-construction) BMPs include the minimization of land disturbance, minimization of impervious surfaces, treatment of runoff, and energy dissipation devices. Permanent BMPs included with the project will

reduce the suspended particulate loads (and thus pollutants associated with the particulates) entering waterways after construction is completed.

- Permanent Stormwater Treatment BMPs will be included. Biofiltration Swales and Strips, Austin Vault Sand Filters, and Detention Devices have been identified as potentially feasible for this project.

Geology, Soils, and Seismicity

- Additional geotechnical design investigations will be performed during final design and engineering:
 - Further engineering design work will be carried out in accordance with the Department's Seismic Design Criteria and the regulations detailed in the Alquist-Priolo Earthquake Fault Zoning Act.
 - Project elements will be designed and constructed to meet seismic design requirements for ground shaking and ground motions, as determined for the project location and site conditions.
 - Additional field investigations will be performed, including geotechnical borings and evaluation of soil samples from the borings, to determine engineering properties of the soils and recommendations for foundations and footings.
 - Measures to minimize landsliding and slope instability will also be further defined during final design, including retaining wall and slope/cut design.
- Vegetative seeding, slope covers, and drainage measures to collect and control runoff will minimize potential soil erosion during and after construction, as discussed in Section 2.9.4.

Hazardous Waste and Materials

- Testing for ADL will be performed at the Plans, Specifications and Estimates (PS&E) stage prior to project construction. If ADL is found, special handling of the contaminated soil would be required and would include implementing a health and safety plan.
- If construction encounters soil or groundwater contamination, all activities involving contaminated soil or groundwater will be planned to comply with the various regulatory agencies' requirements.
- Existing structures that will be removed or modified by the project should be tested for the presence of hazardous materials, such as lead-based paint and asbestos. If present, these materials must be handled and disposed accordingly.

Air Quality

- The construction contractor will comply with Caltrans' Standard Specifications Section 7-1.01F and Section 10 of Caltrans' Standard Specifications (1999).
- Water or dust palliative will be applied to the site and equipment as frequently as necessary to control fugitive dust emissions.
- Soil binder will be spread on any unpaved roads used for construction purposes and on all project construction parking areas.
- Trucks will be washed off as they leave the right-of-way as necessary to control fugitive dust emissions.
- Construction equipment and vehicles will be properly tuned and maintained. Low-sulfur fuel will be used in all construction equipment as provided in California Code of Regulations Title 17, Section 93114.
- Develop a dust control plan documenting sprinkling, temporary paving, speed limits, and expedited revegetation of disturbed slopes as needed to minimize construction impacts to existing communities.
- Locate equipment and materials storage sites as far away from residential and park uses as practical. Keep construction areas clean and orderly.
- Prohibit construction activities involving extended idling of diesel equipment at sensitive land uses such as residents and schools.
- Use track-out reduction measures such as gravel pads at project access points to minimize dust and mud deposits on roads affected by construction traffic.
- Cover all transported loads of soils and wet materials prior to transport, or provide adequate freeboard (space from the top of the material to the top of the truck) to reduce PM₁₀ and deposition of particulate during transportation.
- Remove dust and mud that are deposited on paved, public roads due to construction activity and traffic to decrease particulate matter.
- To the extent feasible, route and schedule construction traffic to reduce congestion and related air quality impacts caused by idling vehicles along local roads during peak travel times.
- Install mulch or plant vegetation as soon as practical after grading to reduce windblown particulate in the area.

The following technologies can control or reduce diesel engine emissions related to construction activities and equipment. They are to be considered for requirement by the construction contractor, as applicable to the project equipment and construction activities:

- Catalyzed converter/muffler;
- Diesel particulate filter and particulate filter/catalyst;
- Crankcase filtration system;
- Oxidation catalyst; and
- Limit traffic speeds on unpaved roads to 15 miles per hour.

In addition, the following actions can help mitigate pollutant emissions in construction equipment exhaust by requiring:

- Use ultra-low-sulfur fuel;
- Use biodiesel fuel;
- Use fuel additives, including catalysts and cetane enhancers;
- Keep engines properly tuned;
- Limit idling; and
- Avoid unnecessary concurrent use of equipment.

To avoid or minimize potential impacts from naturally occurring asbestos and structural asbestos, the following measures would be implemented:

- Foundation locations for project structures will be investigated for the presence of naturally occurring asbestos during final project design.
- Existing structures that will be removed or modified by the project will be tested for the presence of asbestos-containing materials. If present, these materials will be handled and disposed accordingly.

Noise

- The Department intends to incorporate noise abatement in the form of soundwalls in the following locations, which have been determined to be feasible at the following locations:
 - Along westbound I-80 from just west of Wildcat Creek to San Pablo Dam Road (SW1);
 - Along segments between the existing I-80 westbound El Portal Drive on-ramp and the proposed relocated westbound El Portal Drive on-ramp (SW2, SW3, and SW5); and
 - As an extension of the 8-foot-high masonry soundwall that the City of San Pablo plans to construction along El Portal Drive (SW4).

If, during final design, conditions have substantially changed, noise abatement may not be necessary. The final decision on noise abatement will be made upon completion of the project design and the public involvement processes.

- The increase in noise from construction activities will be reasonably minimized by implementing provisions in Section 7-1.01I, “Sound Control Requirements,” of the Caltrans Standard Specifications and the following abatement measures:
 - Consider construction of the soundwall replacements along westbound I-80 and San Pablo Dam Road as early as possible to minimize noise exposure to homes.
 - Equip all internal combustion engine driven equipment with intake and exhaust mufflers that are in good condition and appropriate for the equipment.
 - Prohibit unnecessary idling of internal combustion engines within 100 feet of residences.
 - Avoid staging of construction equipment within 200 feet of residences and locate all stationary noise-generating construction equipment, such as air compressors and portable power generators, as far practical from noise-sensitive residences.
 - Require all construction equipment to conform to Section 7-1.01I, Sound Control Requirements of the latest Standard Specifications.
 - Avoid nighttime construction work when feasible.
 - Limit demolition and pile-driving activities to daytime hours only. If nighttime work is required, implement a construction noise-monitoring program and provide additional mitigation as necessary (in the form of noise control blankets or other temporary noise barriers, etc.) for affected receptors.

Wetlands and Other Waters of the United States

- The portion of Wildcat Creek below the existing wingwalls will be designated as an environmentally sensitive area (ESA) and flagged to exclude construction workers and equipment. Work is planned at the top of the creek bank for installation of the proposed frontage road bridge.
- Best management practices (BMPs) will be implemented during bridge construction to prevent stormwater runoff from the construction area from entering Wildcat Creek.
- San Pablo Creek will be avoided and also designated as an ESA.

Animal Species

- Erosion control measures will be required of the construction contractor to prevent material and sediments from entering the creeks.

- Existing cut slopes, dominated by grassy habitat alongside I-80, will be reseeded following construction.
- Landscaping will be installed following construction.
- Vegetation removal should be timed to avoid the general nesting period for songbirds and other migratory birds (approximately March 1 to August 31). If vegetation must be removed during this period, preconstruction surveys should be conducted to check for the presence of active nests, and a perimeter established to avoid construction near active nests until the breeding pair and any fledglings leave.

Threatened and Endangered Species

- Construction-area delineation: Before any ground disturbance occurs, project area boundaries will be clearly delineated with ESA fencing and solid barriers. At San Pablo Creek, the work area will be designated around the existing ramp where pavement will be removed, such that no work will be allowed at or within the creek banks. At Wildcat Creek, the work area will be designated to allow construction of the new bridge abutments near the top of the bank, and barriers will be placed to prevent construction activities, equipment, and erosion from extending beyond the top of the bank area. The ESA fencing and barriers will be put in place outside of the steelhead migratory season, between June 15 and October 15.
- Construction monitoring: A biological monitor will inspect and record placement of the construction ESA fencing and barriers prior to start of construction. A biologist will monitor the initial ground disturbance activities and during vegetation clearance at Wildcat Creek.
- Vegetation: Vegetation near Wildcat Creek will be removed without the use of heavy machinery or herbicidal sprays to minimize impacts to any special-status species.
- Implementation of erosion control measures: Erosion control measures will be undertaken to minimize sedimentation impacts to the creek. The measures will be limited to tightly woven fiber netting or similar materials to ensure that CRLF do not become entrapped. Erosion control measures developed by the contractor will comply with the *Caltrans Statewide Stormwater Program* (<http://www.dot.ca.gov/hq/env/stormwater/>; Caltrans 2007).
- Onsite construction personnel education program: The USFWS-approved biologist will conduct onsite training with construction personnel for CRLF.

- Spill avoidance and response: Avoidance of spills through implementation of a spill avoidance and response plan will be enforced.
- Entrapment avoidance: To avoid entrapment of CRLF, all excavated steep-walled holes or trenches more than two feet deep will be covered at the end of each working day. Holes or trenches will be fitted with at least one escape ramp. Construction pipes, culverts, and similar structures will be inspected for CRLF before being buried, capped, moved, or otherwise used in any way.
- Following completion of the proposed project, all temporary roads, staging areas, and work areas will be removed and temporary impact areas restored to a natural condition to provide baseline habitat values. All construction-related equipment, including erosion control and ESA fencing, will be removed.

Invasive Species

- The landscaping and erosion control included in the project will not use species listed as noxious weeds.
- The contractor will be required to use equipment that is cleaned and inspected for plant material prior to arrival and use at the project site.

F.2 Mitigation Measures

Community Impacts

Relocations and Environmental Justice

- Relocation assistance payments and counseling will be provided to persons and businesses in accordance with the Federal Uniform Relocation Assistance and Real Properties Acquisition Policies Act, as amended, to ensure adequate relocation and a decent, safe, and sanitary home for displaced residents. All benefits and services would be provided equitably without regard to race, color, national origin, or sex in compliance with Title VI of the Civil Rights Act (42 U.S. Code 2000d, et seq.).

Threatened and Endangered Species

- Mitigation for impacts to upland CRLF habitat will be provided at a 1:1 ratio for temporary impacts and at a 3:1 ratio for permanent impacts (0.10 acre).
- Mitigation credits would be purchased for this species from a USFWS-approved mitigation bank. Alternatively, habitat enhancement could be performed at Wildcat Creek. Final mitigation plans will be defined during final design and permitting of the project.

F.3 Draft Form: Summary of Required Permits and Environmental Commitments—PS&E Phase

The form starts on the next page.

SUMMARY OF REQUIRED PERMITS AND ENVIRONMENTAL COMMITMENT -PS&E PHASE

TO: _____

PROJECT MANAGER:

Laura Hameister

DATE:

ATTN.: _____

PROJECT ENGINEER:

Bonnita Chow

CO. RTE. MP:

CCC-80-3.8/5.3

DESIGN OFFICE

RU/EA: OA0800

P.M. 3.8/5.3

Below is a summary of the required permits, and environmental commitments that must be incorporated into the PS&E for this project. Please contact sheryl_m_garcia@dot.ca.gov for further information.

PERMITS AND AGREEMENTS		Ref.	NSSP Y/N	Responsible Staff	Timing	Action Taken	Date
	CDFG 1601/03 Streambed Alteration Agreement	1-33		CCTA	PS&E	File permit application	
	BCDC: Bay Fill Permit					NA	
	BCDC: Pub. Access Review					NA	
	Coastal Dev. Permit: County					NA	
	Coastal Dev. Permit: State					NA	
	State Lands Lease Agreement					NA	
	RWQCB: NPDES	1-33		CCTA	PS&E	File permit application	
	RWQCB: Water Qual. Cert.	1-33		CCTA	PS&E	File permit application	
	Endangered Species Act ¹ Consultation	1-33		CCTA	Design/ Const.	Implement Biological Opinion recommendations	
	USACOE 404: Nationwide					NA	
	USACOE 404: Individual					NA	
	USACOE Section 10 Permit					NA	
	USCG Section 9 Permit					NA	
Land Use							
	Time reconstruction of pedestrian overcrossing at Riverside Ave. to avoid school sessions.	2-10		CCTA	Final design		
	Give advance notice of construction to inform Riverside Elementary staff and parents about plans and timing.	2-10		CCTA	Final design		
	Design pedestrian overcrossing so school staff can lock the entrance to school property but still allow public access between overcrossing and Amador Street.	2-10		CCTA	Final design		
	Investigate and consider reconstructing pedestrian overcrossing before reconstruction of the I-80/San Pablo Dam Road interchange.	2-10		CCTA	Final design		
Community Impacts							
	Determine impacts to parking areas at businesses along San Pablo Dam Road west of I-80, and either reconfigure layout of parking lot or compensate for loss of parking.	2-24		Caltrans ROW and CCTA	Final design and ROW		
	Provide persons and businesses with relocation assistance payments and counseling in accordance with the Federal Uniform Relocation Assistance and Real Properties Acquisition Policies Act and in compliance with Title VI of the Civil Rights Act.	2-30		Caltrans ROW and CCTA	Final design and ROW		

	Ref.	NSSP Y/N	Responsible Staff	Timing	Action Taken	Date
Utilities and Emergency Services						
Perform further utility investigation to verify all utility data during the final project design phase.	2-32		Caltrans and CCTA	Final design		
Traffic and Transportation						
Develop a Traffic Management Plan to address traffic impacts from staged construction, detours, and specific traffic handling concerns such as emergency access during project construction	2-32		CCTA	Final design		
Visual/Aesthetics						
Match architectural treatment of soundwalls and retaining walls to other walls adjacent to the project. Give wall surfaces an aesthetic treatment to reduce glare and visual monotony.	2-98		CCTA	Design/ Const.		
Provide replacement planting to provide screening of highway features and permanent slope stabilization. Accommodate vine planting where possible to soften walls and control graffiti. Plant trees wherever possible. Consider tall evergreen trees for replacement planting in locations where existing large-scale trees are removed for the project.	2-98		CCTA	Design/ Const.		
Rollingwood Drive, Amador Street: Add trees or shrubs wherever possible to screen views of roadway and restore views of existing trees.	2-98		CCTA	Design/ Const.		
Humboldt Avenue: As replacement planting will not be possible along the side of the new soundwall facing the community, aesthetic wall treatments should be emphasized.	2-98		CCTA	Design/ Const.		
Cultural Resources						
If project changes to include areas not yet surveyed, conduct surveys of these areas.	2-101		CCTA	Design/ Const.		
If cultural materials are found during construction, divert all earth-moving activity in and around the discovery area until after an archaeologist assesses the find.	2-102		Construction Contractor	Const.		
Contact County Coroner if any human remains are found, and cease earth-moving in and around the discovery area. Follow CA Public Resources Code Section 5097.98 provisions as applicable.	2-102		Construction Contractor	Const.		

COMMITMENTS

	Ref.	NSSP Y/N	Responsible Staff	Timing	Action Taken			Date
Water Quality and Stormwater Runoff								
Include feasible temporary and permanent erosion control BMPs in PS&E.	2-110		CCTA and Construction Contractor	PS&E				
Include stormwater BMPs for temporary soil stabilization and sediment control in SWPPP.	2-111		CCTA and Construction Contractor	PS&E				
Geology, Soils, and Seismicity								
Perform additional geotech design investigation in accordance with Caltrans seismic design criteria and Alquist-Priolo Earthquake Fault Zoning Act regulations.	2-119		CCTA	Design				
Design and construct project elements to meet seismic design requirements for ground shaking and ground motions.	2-120		CCTA	Design/ Const.				
Perform additional geotech design investigation (use borings and evaluate soil samples); determine soil engineering properties and make recommendations for foundations and footings.	2-120		CCTA	Pre-const.				
Define measures to minimize landsliding and slope instability.	2-120		CCTA	Final design				
Minimize potential soil erosion using vegetative seeding, soil covers, and drainage measures to collect and control runoff.	2-120		CCTA and Construction Contractor	During and post-const.				
Hazardous Waste and Materials								
Perform testing for ADL, implement special handling measures for soil if ADL is found, and implement health and safety plan.	2-123		CCTA and Construction Contractor	PS&E, pre-construction				
If construction encounters soil or groundwater contamination, all related activities should comply with regulatory requirements for handling and disposal.	2-123		CCTA and Construction Contractor	Pre-const.				
Test existing structures that will be modified or removed for hazardous materials such as lead and asbestos. If present, handle and dispose of these materials accordingly.	2-123		CCTA and Construction Contractor	Pre-const.				
Air Quality								
Ensure that construction contractor complies with Section 7-1.01F and Section 10 of Caltrans' Standard Specifications.	2-135		Caltrans Design/ Const.	Const.				
Noise								
If necessary, abate noise by installing soundwall along westbound I-80 from just west of Wildcat Creek to San Pablo Dam Road (SW1)	2-147		Caltrans Design/ Const.	Const.				

ENVIRONMENTAL (Ref.	NSSP Y/N	Responsible Staff	Timing	Action Taken		Date
	If necessary, abate noise by installing soundwalls along segments between the existing I-80 westbound El Portal Drive on-ramp and the proposed relocated westbound El Portal Drive on-ramp (SW2, SW3, and SW5)	2-148		Caltrans Design/ Const.	Const.			
	If necessary, abate noise by extending the 8-foot-high masonry soundwall that the City of San Pablo plans to construct along El Portal Drive (SW4).	2-150		Caltrans Design/ Const.	Const.			
	Minimize increase in noise exposure from construction equipment by early construction of replacement soundwalls along westbound I-80 and San Pablo Dam Road.	2-151		Caltrans Design/ Const.	Const.			
	Check condition of intake and exhaust mufflers on internal combustion engine-driven equipment.	2-151		Construction Contractor	Const.			
	Prohibit unnecessary idling of internal combustion engines within 100 feet of residences.	2-151		Construction Contractor	Const.			
	Avoid staging mobile construction equipment within 200 feet of residences and keep all stationary noisy construction equipment as far as practical from noise-sensitive residences.	2-151		Construction Contractor	Const.			
	Require construction equipment to conform to Caltrans Standard Specifications Section 7-1.01I, Sound Control Requirements.	2-151		Construction Contractor	Const.			
	Avoid nighttime construction work when feasible.	2-151		Construction Contractor	Const.			
	Limit demolition and pile-driving activities to daytime hours. Implement noise-monitoring program and provide additional mitigation as necessary for affected receptors if nighttime work is required.	2-151		Construction Contractor	Const.			
Wetlands and Other Waters of the United States								
	Designate the portion of Wildcat Creek below the existing wingwalls as an ESA in construction plans. Exclude construction workers and equipment during work at the top of the creek bank to install the frontage road bridge.	2-156		CCTA	Pre-const.			
	Implement BMPs during bridge construction to prevent stormwater runoff from the construction area from reaching Wildcat Creek.	2-156		CCTA, Construction Contractor	Const.			

	Ref.	NSSP Y/N	Responsible Staff	Timing	Action Taken		Date
Designate San Pablo Creek as an ESA in construction plans.	2-156		CCTA	Pre-const.			
Animal Species							
Implement erosion control measures to keep material and sediments from entering the creeks.	2-159		CCTA, Construction Contractor	Pre-const.			
After construction, reseed existing cut slopes that have grassy habitat alongside I-80 and relandscape.	2-159		Construction Contractor	Post-const.			
Avoid general nesting period for songbirds and other migratory birds (March 1 to Aug 1) when removing vegetation. If vegetation must be removed in this period, do preconstruction surveys to check for active nests, and establish perimeter to avoid construction near active nests.	2-159		Construction Contractor	March 1 to Aug 1			
Threatened and Endangered Species							
Outside of the steelhead migratory season (June 15 to Dec 15), delineate project area boundaries with ESA fencing and solid barriers before ground disturbance occurs. Construction work will be excluded from San Pablo Creek and its banks. At Wildcat Creek the work area will be only at and near the top of the bank	2-162		CCTA	June 15 to Dec 15			
Have biological monitor inspect and record placement of construction ESA fencing and barriers before construction begins, and then monitor during ground-disturbing activities and vegetation clearance at Wildcat Creek. After vegetation clearance, check periodically to ensure that exclusion fencing is maintained.	2-163		CCTA	Pre-const./ Const.			
Remove vegetation near Wildcat Creek without use of heavy machinery or herbicidal sprays.	2-163		Construction Contractor	Const.			
Implement erosion control measures to minimize sedimentation impacts to the creek. Use tightly woven netting or like materials so CRLF don't become entrapped. Comply with the Caltrans Statewide Stormwater Program.	2-163		Construction Contractor	Const.			
Have USFWS-approved biologist conduct onsite CRLF-related training.	2-163		CCTA	Pre-const./ Const.			
Implement and enforce spill avoidance and response plan.	2-163		Construction Contractor	Const.			

		Ref.	NSSP Y/N	Responsible Staff	Timing	Action Taken		Date
	Cover all excavated steep-walled holes or trenches more than 2 feet deep at the end of each working day. Fit holes and trenches with at least one escape ramp. Inspect pipes, culverts, and other such structures for CRLF before burying, capping, moving, or otherwise using them in any way.	2-163		Construction Contractor	Const.			
	After construction is complete, remove all temporary roads, staging areas, and work areas, and restore temporary impact areas to a natural condition. Remove all construction-related equipment including fencing of any kind.	2-163		Construction Contractor	Post-const.			
	Mitigate for impacts to upland CRLF habitat at a 1:1 ratio for temporary impacts and at a 3:1 ratio for permanent impacts (0.10 acre).	2-163		CCTA	Design/Const.			
	Purchase mitigation credits for CRLF from a USFWS-approved mitigation bank, or enhance habitat at Wildcat Creek. Define final mitigation plans during final design and permitting of the project.	2-163		CCTA	Design/Const.			
	Invasive Species							
	Use no noxious weed species for landscaping and erosion control.	2-165		Construction Contractor	Const.			
	Require contractor to use clean equipment that is inspected for plant material before it arrives and is used at the project site.	2-165		Caltrans Design/ Const.	Const.			

c Attachments

cc: Design, Senior Envir. Plan., File

OFFICE CHIEF OF ENVIRONMENTAL PLANNING

Apr-04

Appendix G List of Acronyms

AADT	Annual Average Daily Traffic
AB	Assembly Bill
ABAG	Association of Bay Area Governments
AC Transit	Alameda-Contra Costa Transit
APE	Area of Potential Effect
ASR	Archaeological Survey Report
BAAQMD	Bay Area Air Quality Management District
BART	Bay Area Rapid Transit
BMP	Best Management Practice
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CDFG	California Department of Fish and Game
CESA	California Endangered Species Act
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CGS	California Geological Survey
CNDDDB	California Natural Diversity Data Base
CNPS	California Native Plant Society
CO	carbon monoxide
CO ₂	carbon dioxide
CRHR	California Register of Historic Resources
CHRIS/NWIC	California Historic Resources Inventory System, Northwest Information Center
CRMP	Construction Risk Management Plan
CWA	Clean Water Act
dBA	A-weighted decibel
Department	California Department of Transportation
EA	Environmental Assessment
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FHPM	Federal-Aid Highway Program Manual
FHWA	Federal Highway Administration
GHG	greenhouse gas
HOV	High-occupancy vehicle
I	Interstate
IS	Initial Study
ISA	Initial Site Assessment
IST	Intelligent Transportation System
kV	kilovolt
L _{eq}	equivalent sound level
LOS	Level of service
M	moment magnitude, an earthquake intensity measure
µg/m ³	microgram(s) per cubic meter
mg/m ³	milligram(s) per cubic meter
mpg	miles per gallon
mph	miles per hour
MSAT	Mobile Source Air Toxics

MTC	Metropolitan Transportation Commission
NAAQS	National Ambient Air Quality Standards
NAC	Noise Abatement Criteria
ND	Negative Declaration
NEPA	National Environmental Policy Act
NO ₂	nitrogen dioxide
NOAA Fisheries	National Oceanic and Atmospheric Administration's National Marine Fisheries Service
NO _x	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
O ₃	Ozone
PM	Post mile
PM ₁₀	particulate matter less than 10 micrometers in diameter
PM _{2.5}	particulate matter less than 2.5 micrometers in diameter
ppm	part(s) per million
PDT	Project Development Team
PSR	Project Study Report
ROGs	Reactive organic gases
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Board
SHPO	State Historic Preservation Office(r)
SIP	State Implementation Plan
SO ₂	sulfur dioxide
SO _x	sulfur oxides
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TIP	Transportation Improvement Program
USACE	U.S. Army Corps of Engineers
USDOT	U.S. Department of Transportation
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
VMT	vehicle miles traveled
vpd	vehicles per day

Appendix H List of Technical Studies

The following technical studies were prepared to support this environmental document:

- Air Quality Impact Assessment, January 2009
- Archaeological Survey Report, July 2008
- Biological Assessment, September 2008
- Community Impact Assessment, May 2008
- Fisheries Biological Assessment, September 2008
- Phase 1 Geologic Hazards Evaluation Report, October 2007
- Hazardous Waste Technical Report, March 2008
- Historic Property Survey Report, July 2008
- Historical Resources Evaluation Report, July 2008
- Location Hydraulic Study Report, October 2008
- Natural Environment Study, September 2008
- Noise Study Report, March 2009
- Storm Water Data Report, February 2009
- Traffic Operations Report, October 2008
- Visual Resources Impact Report, April 2009
- Water Quality Report, December 2008



Appendix I Correspondence

**Federal Endangered and Threatened Species that Occur in
or may be Affected by Projects in the Counties and/or
U.S.G.S. 7 1/2 Minute Quads you requested**

Document Number: 080717023302

Database Last Updated: January 31, 2008

Quad Lists

Listed Species

Invertebrates

- *Branchinecta conservatio*
 - Conservancy fairy shrimp (E)
- *Branchinecta lynchi*
 - vernal pool fairy shrimp (T)
- *Haliotes sorenseni*
 - white abalone (E) (NMFS)
- *Icaricia icarioides missionensis*
 - mission blue butterfly (E)
- *Incisalia mossii bayensis*
 - San Bruno elfin butterfly (E)
- *Speyeria callippe callippe*
 - callippe silverspot butterfly (E)
- *Syncaris pacifica*
 - California freshwater shrimp (E)

Fish

- *Acipenser medirostris*
 - green sturgeon (T) (NMFS)
- *Eucyclogobius newberryi*
 - tidewater goby (E)
- *Hypomesus transpacificus*
 - Critical habitat, delta smelt (X)

- delta smelt (T)
- *Oncorhynchus kisutch*
 - coho salmon - central CA coast (E) (NMFS)
 - Critical habitat, coho salmon - central CA coast (X) (NMFS)
- *Oncorhynchus mykiss*
 - Central California Coastal steelhead (T) (NMFS)
 - Central Valley steelhead (T) (NMFS)
 - Critical habitat, Central California coastal steelhead (X) (NMFS)
 - Critical habitat, Central Valley steelhead (X) (NMFS)
- *Oncorhynchus tshawytscha*
 - Central Valley spring-run chinook salmon (T) (NMFS)
 - Critical habitat, winter-run chinook salmon (X) (NMFS)
 - winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

- *Ambystoma californiense*
 - California tiger salamander, central population (T)
- *Rana aurora draytonii*
 - California red-legged frog (T)
 - Critical habitat, California red-legged frog (X)

Reptiles

- *Masticophis lateralis euryxanthus*
 - Alameda whipsnake [=striped racer] (T)
 - Critical habitat, Alameda whipsnake (X)
- *Thamnophis gigas*
 - giant garter snake (T)

Birds

- *Charadrius alexandrinus nivosus*
 - western snowy plover (T)
- *Diomedea albatrus*
 - short-tailed albatross (E)
- *Pelecanus occidentalis californicus*
 - California brown pelican (E)
- *Rallus longirostris obsoletus*

- California clapper rail (E)
- *Sternula antillarum* (=Sterna, =albifrons) browni
 - California least tern (E)
- *Strix occidentalis caurina*
 - northern spotted owl (T)

Mammals

- *Arctocephalus townsendi*
 - Guadalupe fur seal (T) (NMFS)
- *Balaenoptera borealis*
 - sei whale (E) (NMFS)
- *Balaenoptera musculus*
 - blue whale (E) (NMFS)
- *Balaenoptera physalus*
 - finback (=fin) whale (E) (NMFS)
- *Enhydra lutris nereis*
 - southern sea otter (T)
- *Eubalaena* (=Balaena) glacialis
 - right whale (E) (NMFS)
- *Eumetopias jubatus*
 - Critical Habitat, Steller (=northern) sea-lion (X) (NMFS)
 - Steller (=northern) sea-lion (T) (NMFS)
- *Physeter catodon* (=macrocephalus)
 - sperm whale (E) (NMFS)
- *Reithrodontomys raviventris*
 - salt marsh harvest mouse (E)

Plants

- *Arctostaphylos hookeri* ssp. ravenii
 - Presidio (=Raven's) manzanita (E)
- *Arctostaphylos pallida*
 - pallid manzanita (=Alameda or Oakland Hills manzanita) (T)
- *Calochortus tiburonensis*

- Tiburon mariposa lily (T)
- *Castilleja affinis* ssp. *neglecta*
 - Tiburon paintbrush (E)
- *Clarkia franciscana*
 - Presidio clarkia (E)
- *Cordylanthus mollis* ssp. *mollis*
 - soft bird's-beak (E)
- *Hesperolinon congestum*
 - Marin dwarf-flax (=western flax) (T)
- *Holocarpha macradenia*
 - Critical habitat, Santa Cruz tarplant (X)
 - Santa Cruz tarplant (T)
- *Lasthenia conjugens*
 - Contra Costa goldfields (E)
 - Critical habitat, Contra Costa goldfields (X)
- *Lessingia germanorum*
 - San Francisco lessingia (E)
- *Streptanthus niger*
 - Tiburon jewelflower (E)

Proposed Species

Plants

- *Cordylanthus mollis* ssp. *mollis*
 - Critical habitat, soft bird's-beak (PX)

Candidate Species

Invertebrates

- *Haliotes cracherodii*
 - black abalone (C) (NMFS)

Quads Containing Listed, Proposed or Candidate Species:

BRIONES VALLEY (465B)

OAKLAND EAST (465C)

RICHMOND (466A)

SAN QUENTIN (466B)

SAN FRANCISCO NORTH (466C)

OAKLAND WEST (466D)

BENICIA (482C)

PETALUMA POINT (483C)

MARE ISLAND (483D)

County Lists

No county species lists requested.

Key:

- (E) Endangered - Listed as being in danger of extinction.
- (T) Threatened - Listed as likely to become endangered within the foreseeable future.
- (P) Proposed - Officially proposed in the Federal Register for listing as endangered or threatened.
- (NMFS) Species under the Jurisdiction of the [National Oceanic & Atmospheric Administration Fisheries Service](#). Consult with them directly about these species.
- Critical Habitat - Area essential to the conservation of a species.
- (PX) Proposed Critical Habitat - The species is already listed. Critical habitat is being proposed for it.
- (C) Candidate - Candidate to become a proposed species.
- (V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.
- (X) Critical Habitat designated for this species

Important Information About Your Species List

How We Make Species Lists

We store information about endangered and threatened species lists by U.S. Geological Survey 7½

minute quads. The United States is divided into these quads, which are about the size of San Francisco.

The animals on your species list are ones that occur within, or may be affected by projects within, the quads covered by the list.

- Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them.
- Amphibians will be on the list for a quad or county if pesticides applied in that area may be carried to their habitat by air currents.
- Birds are shown regardless of whether they are resident or migratory. Relevant birds on the county list should be considered regardless of whether they appear on a quad list.

Plants

Any plants on your list are ones that have actually been observed in the area covered by the list. Plants may exist in an area without ever having been detected there. You can find out what's in the surrounding quads through the California Native Plant Society's online [Inventory of Rare and Endangered Plants](#).

Surveying

Some of the species on your list may not be affected by your project. A trained biologist or botanist, familiar with the habitat requirements of the species on your list, should determine whether they or habitats suitable for them may be affected by your project. We recommend that your surveys include any proposed and candidate species on your list.

For plant surveys, we recommend using the [Guidelines for Conducting and Reporting Botanical Inventories](#). The results of your surveys should be published in any environmental documents prepared for your project.

Your Responsibilities Under the Endangered Species Act

All animals identified as listed above are fully protected under the Endangered Species Act of 1973, as amended. Section 9 of the Act and its implementing regulations prohibit the take of a federally listed wildlife species. Take is defined by the Act as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" any such animal.

Take may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or shelter (50 CFR §17.3).

Take incidental to an otherwise lawful activity may be authorized by one of two procedures:

- If a Federal agency is involved with the permitting, funding, or carrying out of a project that may result in take, then that agency must engage in a formal [consultation](#) with the Service.
- During formal consultation, the Federal agency, the applicant and the Service work together to avoid or minimize the impact on listed species and their habitat. Such consultation would result in a biological opinion by the Service addressing the anticipated effect of the project on listed

and proposed species. The opinion may authorize a limited level of incidental take.

- If no Federal agency is involved with the project, and federally listed species may be taken as part of the project, then you, the applicant, should apply for an incidental take permit. The Service may issue such a permit if you submit a satisfactory conservation plan for the species that would be affected by your project.
- Should your survey determine that federally listed or proposed species occur in the area and are likely to be affected by the project, we recommend that you work with this office and the California Department of Fish and Game to develop a plan that minimizes the project's direct and indirect impacts to listed species and compensates for project-related loss of habitat. You should include the plan in any environmental documents you file.

Critical Habitat

When a species is listed as endangered or threatened, areas of habitat considered essential to its conservation may be designated as [critical habitat](#). These areas may require special management considerations or protection. They provide needed space for growth and normal behavior; food, water, air, light, other nutritional or physiological requirements; cover or shelter; and sites for breeding, reproduction, rearing of offspring, germination or seed dispersal.

Although critical habitat may be designated on private or State lands, activities on these lands are not restricted unless there is Federal involvement in the activities or direct harm to listed wildlife.

If any species has proposed or designated critical habitat within a quad, there will be a separate line for this on the species list. Boundary descriptions of the critical habitat may be found in the Federal Register. The information is also reprinted in the Code of Federal Regulations (50 CFR 17.95). See our [critical habitat page](#) for maps.

Candidate Species

We recommend that you address impacts to candidate species. We put plants and animals on our candidate list when we have enough scientific information to eventually propose them for listing as threatened or endangered. By considering these species early in your planning process you may be able to avoid the problems that could develop if one of these candidates was listed before the end of your project.

Species of Concern

The Sacramento Fish & Wildlife Office no longer maintains a list of species of concern. However, various other agencies and organizations maintain lists of at-risk species. These lists provide essential information for land management planning and conservation efforts. [More info](#)

Wetlands

If your project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act, you will need to obtain a permit from the U.S. Army Corps of Engineers. Impacts to wetland habitats require site specific mitigation and monitoring. For questions regarding wetlands, please contact Mark Littlefield of this

office at (916) 414-6580.

Updates

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be October 15, 2008.

DEPARTMENT OF TRANSPORTATION

111 GRAND AVENUE
P. O. BOX 23660
OAKLAND, CA 94623-0660
PHONE (510) 286-8729
FAX (510) 622-6374
TTY (800) 735-2929



*Flex your power!
Be energy efficient!*

November 27, 2007

Mr. Chris Nagano
Deputy Assistant Field Supervisor
United States Fish and Wildlife Service
Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825-1846

Subject: Request for Comment on the California Red-Legged Frog Habitat Site Assessment for the Interstate 80/San Pablo Dam Road Interchange Project

Dear Mr. Nagano:

Under Section 7 of the Endangered Species Act (16 U.S.C.A. Sec. 1531 et seq), the California Department of Transportation (Caltrans) has prepared the enclosed site assessment document for the California red-legged frog (CRLF, *Rana aurora draytonii*). We request your determination as to whether CRLF protocol level surveys will be required for the Interstate 80 (I-80)/San Pablo Dam Road Interchange Project.

Caltrans transmits this request as the NEPA lead agency under the provisions of the Memorandum of Understanding (MOU) between the Federal Highway Administration (FHWA) and the California Department of Transportation concerning the State of California's Participation in the Surface Transportation Project Delivery Pilot Program, which became effective on July 1, 2007. The MOU was signed pursuant to Section 6005 of the 2005 Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) which allows the Secretary of Transportation to assign, and the State of California to assume, responsibility for FHWA's responsibilities under NEPA as well as consultation and coordination responsibilities under other Federal environmental laws. As this project is covered by the Pilot Program MOU, FHWA has assigned and Caltrans has assumed FHWA responsibility for environmental review, consultation, and coordination on this project.

Caltrans in cooperation with the FHWA, the Contra Costa Transportation Authority, and the City of San Pablo, proposes to reconstruct the I-80/San Pablo Dam Road Interchange, located in the City of San Pablo, Contra Costa County. The enclosed report has been prepared to evaluate the suitability of habitat for the CRLF within a 1-mile radius of the proposed project. The site review was carried out in accordance with the *Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog* (U.S. Fish and Wildlife Service, 2005). The report describes the vegetation and aquatic habitats associated with the hydrologic features within the 1-mile radius of the project.

The I-80/San Pablo Dam Road Interchange Project is needed to improve the traffic operations and bicycle/pedestrian access at the interchange. The project limits along I-80 extend from the El

Portal Drive to McBryde Avenue interchanges, a distance of 1.5 miles. Within these limits, the following actions are being considered:

- Closure of the existing isolated El Portal on-ramp and construction of a new on-ramp further west at the El Portal Drive overcrossing, creating a full interchange at that location.
- The new El Portal on-ramp would connect to a new westbound auxiliary lane from El Portal Drive to the San Pablo Dam Road Interchange.
- Two alternatives are being considered to replace the existing San Pablo Dam Road Interchange at approximately the same location: a "Lanes Added" alternative, and a "Tight Diamond" alternative.
- The existing off-ramp at McBryde Avenue would be closed. A one-way frontage road would be constructed between the San Pablo Dam Road Interchange and McBryde Avenue, and westbound I-80 drivers seeking McBryde Avenue would take the frontage road from the San Pablo Dam Road exit ramp.
- Retaining walls would be constructed for the new I-80 westbound on-ramp at El Portal Drive, the westbound auxiliary lane, and the westbound frontage road to McBryde Avenue.
- The existing pedestrian overcrossing spanning I-80 at the terminus of Riverside Avenue would be reconstructed at approximately the same location to accommodate the widened freeway and frontage road.

Interstate-80 crosses two creeks within the project limits, Wildcat Creek between San Pablo Dam Road and McBryde Avenue and San Pablo Creek at the existing isolated El Portal Drive on-ramp. Both creeks are in culverts. No structures would be placed within the creeks. At San Pablo Creek, no work will be done within the creek banks, and the only work proposed is to remove the existing on-ramp pavement, which is located well away from the top of the creek bank. At Wildcat Creek, the one-way frontage road to McBryde Avenue and the auxiliary lane to the westbound I-80 on-ramp from San Pablo Dam Road would cross Wildcat Creek adjacent to the existing I-80 culvert. No bridge construction would take place within the creek or wingwalls.

As indicated in the site assessment report, the creeks in the study area may provide areas of suitable red-legged frog habitat east of I-80. However, no frogs are known to be in the areas to the east, as it is believed that they have been extirpated (Stephen Bobzien, East Bay Regional Park). Furthermore, there would be no construction work to the east of I-80. All of the upland areas to the west of the creek have been developed, and lack habitat connectivity to aquatic and natural upland habitats that might be utilized by California red-legged frog. All project construction in the vicinity of San Pablo and Wildcat Creeks would occur on the west of I-80, and as mentioned above, would avoid work within the creek areas.

Mr. Chris Nagano
November 27, 2007
Page 3

Caltrans kindly requests your review of the enclosed report and your input regarding the presence or absence of California red-legged frog in relation to the proposed interchange improvement project.

If you have any questions or need additional information, please feel free to contact Ahmad Hashemi, Senior Biologist, at 510.286.5961.

Sincerely,

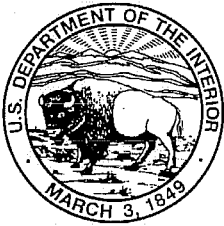
A handwritten signature in dark ink, appearing to read "Jeff G. Jensen", with a stylized flourish at the end.

JEFFREY G. JENSEN
District Office Chief
Office of Biological Sciences and Permits
District 4, Oakland

cc: Adele Ho, City of San Pablo
Suzan Miller, CCTA

Mr. Chris Nagano
November 27, 2007
Page 4

bc: Maximo Anasco, Design, Contra Costa Co
 Howell Chan, Office of Environmental Planning
 Jeffrey Jensen, Office of Biological Sciences and Permits
 Ahmad Hashemi, Office of Biological Sciences and Permits



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825-1846



IN REPLY REFER TO:
81420-2008-TA-1020

MAR 18 2008

Mr. Jim Richards
Office of Biological Sciences and Permits
Attn: Ahmad Hashemi
California Department of Transportation
P. O. Box 23660
Oakland, California 94623-0660

Subject: Request for Technical Assistance for the California Red-legged Frog (*Rana aurora draytonii*) for the Interstate 80 San Pablo Dam Road Interchange Project, Contra Costa County, California (Caltrans EA 04-0A0800)

Dear Mr. Richards:

This is in response to a letter from the California Department of Transportation (Caltrans), dated November 27, 2007, that requested technical assistance for the proposed Interstate 80 San Pablo Dam Road Interchange Project in Contra Costa County, California. Your letter was received by the U.S. Fish and Wildlife Service (Service) on November 28, 2007. At issue are the potential effects of the proposed project on the threatened California red-legged frog (*Rana aurora draytonii*). In the accompanying *California Red-Legged Frog Site Assessment* prepared by URS Corporation, URS concluded that "...habitat suitable for breeding, dispersal, and aestivation is present in the 'Action Area'," but the California red-legged frog is "...not known from the 'Action Area' and are believed to have been extirpated several decades ago." This determination was made based on the following: (1) apparent absence of frogs within the Action Area; (2) nearest known breeding location situated more than 3 miles from the Action Area; and (3) presence of significant barriers to frog passage between the Action Area and the nearest known breeding location. Our comments and recommendations are made under the authority of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) (Act).

The Service concurs with the conclusion that Wildcat Creek, San Pablo Creek and Garrity Creek provide suitable breeding, dispersal, and aestivation habitat for California red-legged frogs. However, the Service disagrees that this listed animal could not occur within the Action Area. Individuals of this threatened amphibian have been observed in Castro Creek, a tributary to San Pablo Creek with headwaters originating in the Sobrante Ridge Regional Preserve (EBRPD) just north of Kennedy Grove Regional Park (EBRPD) (Steve Bobzien, EBRPD, pers. Comm. with Jerry Roe). Adults and juveniles have been observed near Kennedy Grove and tadpoles have been observed in a few pools along the upper reaches of San Pablo Creek below the San Pablo Reservoir (Bert Mulchaey, EBMUD, pers. Comm. with Jerry Roe). Protocol surveys apparently have not been conducted within the lower reaches of San Pablo Creek outside of the East Bay Regional Park District and East Bay Municipal Utility District properties; however, private

TAKE PRIDE
IN AMERICA

citizens have stated they have observed California red-legged frogs in Appian and/or Wilkie creeks (Bert Mulchaey, EBMUD, pers. Comm. with Jerry Roe).

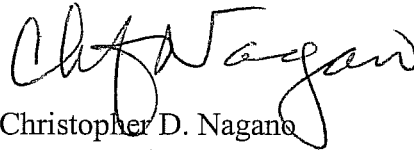
The report states that the closest breeding population of the California red-legged frog "...is separated from the 'Action Area' by significant barriers to frog passage." We do not concur with this conclusion for San Pablo and Wildcat creeks for the following reasons: (1) sufficient connectivity exists between the Action Area and the upper stream reaches where known and potential breeding sites exit; (2) there is minimal undergrounding of the stream channels within these stream reaches; and (3) the creeks support fully developed and continuous riparian corridors. This statement is true for Garrity Creek, which originates within open space entirely surrounded by urban development and is largely undergrounded from its headwaters to Hilltop Lake. (4) the nearest reported occurrence (#124) is from Pinole Creek approximately 4.7 miles to the east; however, more recent survey data collected from EBRPD and EBMUD have identified California red-legged frogs within 3 miles of the Action Area in San Pablo Creek. In addition, the Service does not concur with the conclusion that the California red-legged frog has not historically occurred in the Action Area or that it has been extirpated from Action Area for the following reasons: (1) the apparent lack of data regarding populations in Wildcat Creek or downstream of Kennedy Grove in San Pablo Creek does not prove the absence of the California red-legged frog, but rather, the lack of the completion of protocol surveys; and (2) California red-legged frogs do not necessarily disperse from one breeding site towards another breeding site. Recently, a new California red-legged frog occurrence (number 896 in the California Department of Fish and Game's California Natural Diversity Data Base) in American Canyon in Solano County was found approximately 1.25 miles from the nearest known breeding site to the southeast. State Route 29 (a four lane highway) is located immediately to the west of the occurrence and intensive residential and commercial development is immediately west of the highway. There are no known breeding sites or populations to the west that individual #896 would have been dispersing towards. It is likely that some individual California red-legged frogs move in apparent random directions, for dispersing, food, aestivation, escaping from predators, or other essential behaviors. Individuals like these may use upland areas or riparian areas that do not contain or are located near breeding habitat and, thus, if these areas are affected by the proposed project could result in adverse effects to the threatened animal.

Rheem Creek, which originates within the Action Area immediately east of Interstate 80 south of the Hilltop Drive interchange at the location of the Rolling Hills Memorial Park, indicated on Figure 1 was not included in the Site Assessment. Much of the upper reaches of Rheem Creek have been undergrounded and flow through dense urban landscapes with little to no riparian corridor. Rheem Creek does not provide suitable breeding, non-breeding aquatic, upland, or dispersal habitat for California red-legged frogs and is largely surrounded by urban development. Based on the information provided by Caltrans and otherwise available to us, the Service has concluded it is unlikely the California red-legged frog would be found within the portions of Rheem Creek located within the action area.

We recommend that Caltrans adequately analyze the potential adverse effects of this project on the California red-legged frog in San Palo Creek, Wildcat Creek, and Garrity Creek, given the known occurrence of the listed amphibian in the vicinity of the proposed project, the biology and ecology of this species, including its use of upland and riparian habitat, and the presence of suitable habitat for this threatened animal in the action area located within these three drainages.

As always, we are interested in working with Caltrans and the Local Agencies in conserving listed species while maintaining the safety and efficiency of the Federal, State, and Local Transportation System. Please contact Jerry Roe, Endangered Species Biologist, (Jerry_D_Roe@fws.gov) or me (Chris_Nagano@fws.gov) at the letterhead address or at telephone (916) 414-6600 if you have any questions regarding this letter on the Interstate 80/San Pablo Dam Road Interchange Project.

Sincerely,



Christopher D. Nagano
Deputy Assistant Field Supervisor

cc:

Adele Ho, City of San Pablo, San Pablo, California
Suzan Miller, Contra Costa Transportation Authority, Pleasant Hill, California
Marcia Grefsrud, California Department of Fish and Game, Yountville, California
Scott Wilson, California Department of Fish and Game, Yountville, California
Liam Davis, California Department of Fish and Game, Yountville, California
Melissa Escaron, California Department of Fish and Game, Yountville, California
Chris States, California Department of Transportation, District 4, Oakland, California

DEPARTMENT OF TRANSPORTATION

111 GRAND AVENUE
P. O. BOX 23660
OAKLAND, CA 94623-0660
PHONE (510) 622-8729
FAX (510) 622-6374
TTY (800) 735-2929



*Flex your power!
Be energy efficient!*

September 9, 2008

Mr. Gary Stern
San Francisco Bay Team Leader
United States Department of Commerce
National Oceanic and Atmospheric Administration
National Marine Fisheries Office
777 Sonoma Ave. Room 325
Santa Rosa, CA 95404

Subject: Biological Assessment for Central California Coast Steelhead,
Interstate 80/San Pablo Dam Road Interchange Project

Dear Mr. Stern:

In accordance with the Section 7 of the Endangered Species Act (16 U.S.C.A. Sec. 1531 et seq), the California Department of Transportation (Caltrans) has prepared the enclosed Biological Assessment (BA) for the Central California Coast Steelhead (*Oncorhynchus mykiss*). Caltrans requests your concurrence with the BA findings of "no effect" determination.

Caltrans submits this request as the NEPA lead agency under the provisions of the Memorandum of Understanding (MOU) between the Federal Highway Administration (FHWA) and the California Department of Transportation concerning the State of California's participation in the Surface Transportation Project Delivery Pilot Program, which became effective on July 1, 2007. The MOU was signed pursuant to Section 6005 of the 2005 Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) which allows the Secretary of Transportation to assign, and the State of California to assume, responsibility for FHWA's responsibilities under NEPA as well as consultation and coordination responsibilities under other Federal environmental laws. This project is covered by the Pilot Program MOU, and FHWA has assigned and Caltrans has assumed FHWA responsibility for environmental review, consultation, and coordination on this project.

Caltrans in cooperation with the FHWA, the Contra Costa Transportation Authority, and the City of San Pablo, proposes to reconstruct the Interstate 80 (I-80)/San Pablo Dam Road Interchange, located in the City of San Pablo, Contra Costa County. The proposed project is needed to improve the traffic operations and bicycle/pedestrian access at this interchange. The project limits along I-80 extend from the El Portal Drive to McBryde

Avenue interchanges, a distance of 1.5 miles. Within these limits, the following actions are being considered:

- Closure of the existing isolated El Portal on-ramp and construction of a new on-ramp further west at the El Portal Drive overcrossing, creating a full interchange at that location.
- The new El Portal on-ramp would connect to a new westbound auxiliary lane from El Portal Drive to the San Pablo Dam Road Interchange.
- The existing San Pablo Dam Road overcrossing of I-80 would be replaced.
- The existing off-ramp at McBryde Avenue would be closed. A one-way frontage road would be constructed between the San Pablo Dam Road interchange and McBryde Avenue, and westbound I-80 drivers seeking McBryde Avenue would take the frontage road from the San Pablo Dam Road exit ramp.
- Retaining walls would be constructed for the new I-80 westbound on-ramp at El Portal Drive, the westbound auxiliary lane, and the westbound frontage road to McBryde Avenue.
- The existing pedestrian overcrossing spanning I-80 at the terminus of Riverside Avenue would be reconstructed to accommodate the widened freeway, and the new frontage road to the west. An option to extend the pedestrian structure to cross over Amador Road on the east side of I-80 is also being considered.

Interstate 80 crosses two creeks within the project limits, Wildcat Creek between San Pablo Dam Road and McBryde Avenue and San Pablo Creek at the existing isolated El Portal Drive on-ramp. Both creeks are in culverts. No structures would be placed within the creeks. At San Pablo Creek, no work will be done within the creek or creek banks, and the only work proposed is to remove the existing on-ramp pavement, which is located well away from the top of the bank. At Wildcat Creek, the one-way frontage road to McBryde Avenue and the auxiliary lane to the westbound I-80 on-ramp from San Pablo Dam Road would cross Wildcat Creek adjacent to the existing I-80 culvert. However, no bridge construction would take place within the creek or wingwalls.

Caltrans has determined the project would have no effect on Central California Coast steelhead or its critical habitat. As indicated above, no project construction would occur within San Pablo Creek and Wildcat Creek. Downstream barriers obstruct fish passage to the project area, and therefore the likelihood for this species to be present within project limits is low. Impact avoidance and minimization measures are included in the BA to ensure that project construction would not affect this species.

The project will not adversely affect any Essential Fish Habitat (EFH). No EFH is identified within San Pablo or Wildcat creeks at the project location, and immediately downstream of I-80. Existing fish passage will not be affected by the project.

Mr. Gary Stern
September 9, 2008
Page 3

Caltrans kindly requests your concurrence with the findings of the enclosed BA and appreciates your timely response as this is a critical step in our environmental review and project delivery process. If you have any questions, please feel free to call me at 510-622-8729 or Ahmad Hashemi, Senior Biologist, at 510-286-5961.

Sincerely,

A handwritten signature in dark ink, appearing to read "Ahmad Hashemi".

for,

JEFFREY G. JENSEN
District Office Chief
Office of Biological Sciences and Permits
District 4, Oakland

Mr. Gary Stern
September 9, 2008
Page 4

bc: Bonnita Chow, CT
Laura Hameister, CT
Greg McConnell, CT
Jeff Zimmerman, URS
Ahmad Hashemi, CT
Adele Ho, City of San Pablo
Suzan Miller, CCTA

DEPARTMENT OF TRANSPORTATION

111 GRAND AVENUE
P. O. BOX 23660
OAKLAND, CA 94623-0660
PHONE (510) 622-8729
FAX (510) 622-6374
TTY (800) 735-2929



*Flex your power!
Be energy efficient!*

September 10, 2008

Ms. Susan Moore, Field Supervisor
U.S. Fish and Wildlife Service
Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, Ca 95825-1846

Attention: Jerry Roe

Dear Ms. Moore:

California Department of Transportation (Caltrans) in cooperation with the Federal Highway Administration (FHWA), the Contra Costa Transportation Authority, and the City of San Pablo, proposes to reconstruct the I-80/San Pablo Dam Road Interchange, located in the City of San Pablo, Contra Costa County. Based on our site assessment study and our earlier coordination with the US Fish and Wildlife Service (USFWS, 11/27/2007), Caltrans concluded that there is sufficient connectivity between the threatened California red-legged frog (CRLF, *Rana aurora draytonii*) breeding sites and the proposed project area. Consequently, Caltrans has determined that the project is likely to affect, but not jeopardize, CRLF and requests initiation of formal consultation under Section 7 of the Endangered Species Act.

Caltrans transmits this request as the NEPA lead agency under the provisions of the Memorandum of Understanding (MOU) between the FHWA and Caltrans concerning the State of California's Participation in the Surface Transportation Project Delivery Pilot Program, which became effective on July 1, 2007. The MOU was signed pursuant to Section 6005 of the 2005 Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) which allows the Secretary of Transportation to assign, and the State of California to assume, responsibility for FHWA's responsibilities under NEPA as well as consultation and coordination responsibilities under other Federal environmental laws. As this project is covered by the Pilot Program MOU, FHWA has assigned and Caltrans has assumed FHWA responsibility for environmental review, consultation, and coordination on this project.

The proposed project is needed to improve the traffic operations and bicycle/pedestrian access at the Pablo Dam Road Interchange. Because of the short weaving distances between the San Pablo Dam Road Interchange and the interchanges directly to the east and west, limiting improvements to the San Pablo Dam Road Interchange would not

"Caltrans improves mobility across California"

substantially improve or change traffic operations. For this reason, the project limits along I-80 extend from the El Portal Drive to McBryde Avenue interchanges, a distance of 1.5 miles. Within these limits, the following actions are being considered:

- Closure of the existing isolated El Portal on-ramp and construction of a new on-ramp further west at the El Portal Drive overcrossing, creating a full interchange at that location.
- The new El Portal on-ramp would connect to a new westbound auxiliary lane from El Portal Drive to the San Pablo Dam Road Interchange.
- The existing San Pablo Dam Road overcrossing of I-80 would be replaced.
- The existing off-ramp at McBryde Avenue would be closed. A one-way frontage road would be constructed between the San Pablo Dam Road interchange and McBryde Avenue, and westbound I-80 drivers seeking McBryde Avenue would take the frontage road from the San Pablo Dam Road exit ramp.
- Retaining walls would be constructed for the new I-80 westbound on-ramp at El Portal Drive, the westbound auxiliary lane, and the westbound frontage road to McBryde Avenue.
- The existing pedestrian overcrossing spanning I-80 at the terminus of Riverside Avenue would be reconstructed to accommodate the widened freeway, and the new frontage road to the west. An option to extend the pedestrian structure to cross over Amador Road on the east side of I-80 is also being considered.

Interstate 80 crosses two creeks within the project limits, Wildcat Creek between San Pablo Dam Road and McBryde Avenue and San Pablo Creek at the existing isolated El Portal Drive on-ramp. Both creeks are in culverts. No structures would be placed within the creeks. At San Pablo Creek, no work will be done within the creek banks, and the only work proposed is to remove the existing on-ramp pavement, which is located well away from the top of the bank. At Wildcat Creek, the one-way frontage road to McBryde Avenue and the auxiliary lane to the westbound I-80 on-ramp from San Pablo Dam Road would cross Wildcat Creek adjacent to the existing I-80 culvert. No bridge construction would take place within the creek or wingwalls.

The enclosed BA describes the proposed project and identifies measures to avoid, minimize, and compensate for the effects to the threatened CRLF. In accordance with 50 CFR 401.12(j), any deficiencies in the enclosed BA or non-concurrence with our determinations should be provided to us in writing within 30 days of your receipt of this initiation letter.

Ms. Susan Moore
September 10, 2008
Page 3

Caltrans kindly requests your review of the enclosed BA and appreciates your timely response as this is a critical step in our environmental review and project delivery process. If you have any questions, please feel free to call me at 510-622-8729 or Ahmad Hashemi, Senior Biologist, at 510-286-5961.

Sincerely,



for, JEFFREY G. JENSEN
District Office Chief
Office of Biological Sciences and Permits
District 4, Oakland

Ms. Susan Moore
September 10, 2008
Page 4

bc: Bonnita Chow, CT
Laura Hameister, CT
Greg McConnell, CT
Jeff Zimmerman, URS
Jeffrey Jensen, CT
Adele Ho, City of San Pablo
Suzan Miller, CCTA



WEST CONTRA COSTA UNIFIED SCHOOL DISTRICT

1108 Bissell Avenue
Richmond, CA 94801-3135

Bruce Harter, Ph.D.
Superintendent

Tel: (510) 231-1101
Fax: (510) 236-6784

October 1, 2008

Mr. Paul Maxwell
Chief Deputy Executive Director, Projects
Contra Costa Transportation Authority
3478 Buskirk Avenue, Suite 100
Pleasant Hill, CA 94523

**Subject: I-80/San Pablo Dam Road Interchange Project - Relocation of the Pedestrian
Overcrossing**

Dear Mr. Maxwell:

This letter is in reference to the presentation made by Hisham Noeimi of the Contra Costa Transportation Authority (CCTA) on August 19, 2008, to the West Contra Costa Unified School District Board. CCTA, in cooperation with the California Department of Transportation and the City of San Pablo, is preparing an environmental document for the I-80/San Pablo Dam Road interchange reconstruction project. The project necessitates replacement of the Riverside Avenue pedestrian overcrossing which provides access over I-80 to the Riverside Elementary School.

At the public meeting held on December 3, 2007, students and parents from the school requested relocation of the pedestrian ramp to the east side of Amador Street where the school is located. The relocation will improve safety for students by eliminating the need to cross Amador Street. CCTA has requested input from the West Contra Costa Unified School District (District) on the use of potentially affected school property for purposes of the project's environmental document. A portion of the existing school parking lot at the corner of Amador Street and Riverside Avenue has been identified by CCTA for the location of an eastside landing of the pedestrian structure. This area is currently used as parking for administration, staff, and parents or others who visit or work at the school.

Based on the conceptual plan presented to the District, we understand that Riverside School students will be able to use the relocated ramp to avoid possible traffic conflicts on Amador Street. The ramp will also be open to public use (as is the current overcrossing). The District requests a gate to be installed between the ramp and the school grounds to control access into the school grounds, while still allowing continued public access between the ramp and the public sidewalks on Riverside Avenue and Amador Street. The District also requests that CCTA work with district staff during the design phase of the project to minimize impact of the proposed overcrossing to the school including loss of parking and drop-off areas, aesthetics, landscape and other impacts.

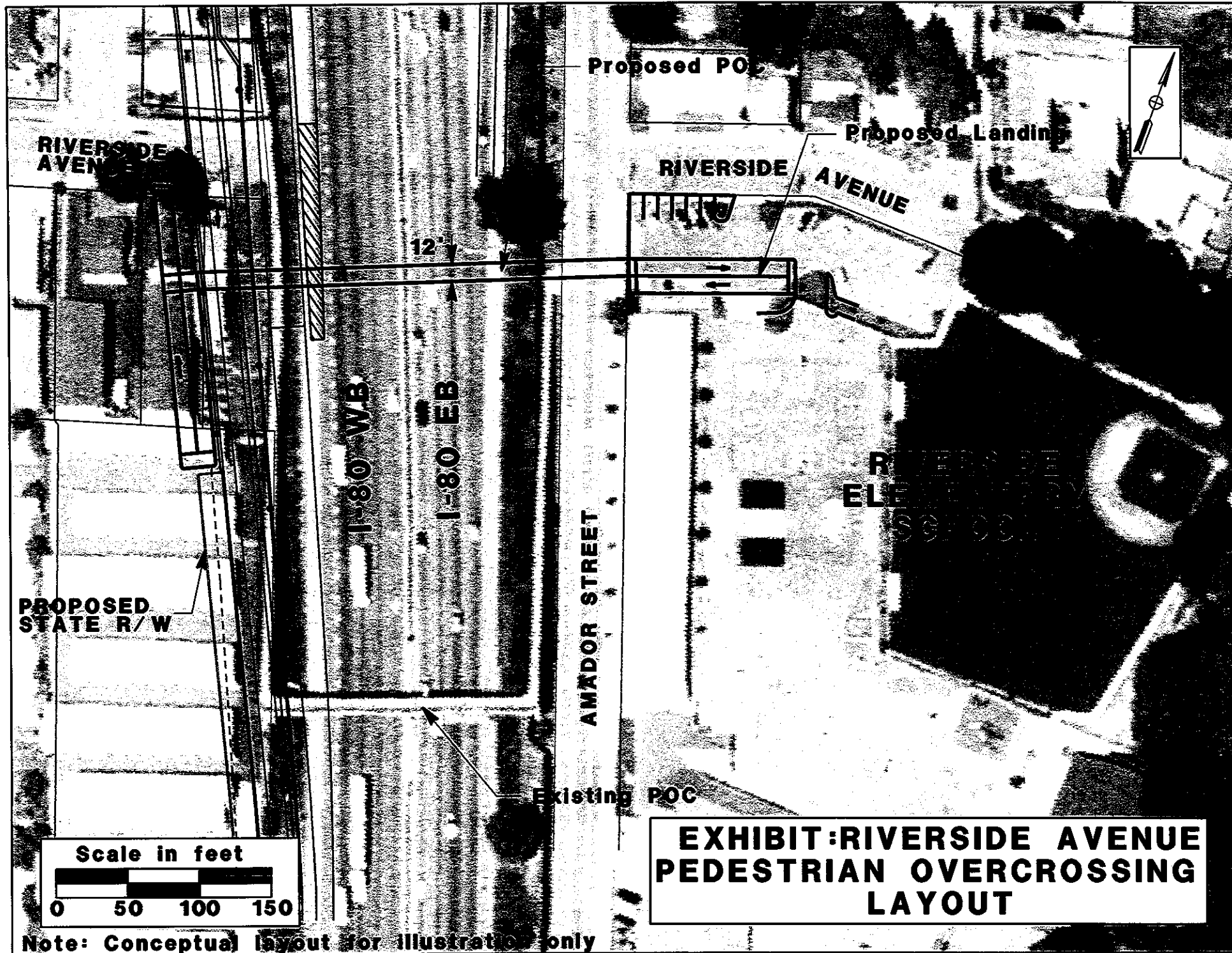
The West Contra Costa Unified School District is in concurrence with the conceptual plan to relocate the pedestrian overcrossing ramp to the east side of Amador Street to the Riverside Elementary School parking lot area. The ramp relocation will provide a safer environment for students and the public alike.

Sincerely,

A handwritten signature in black ink, appearing to read "Bruce Harter", written in a cursive style.

Bruce Harter
Superintendent

BS:JE:aif
Attachment: Exhibit



**OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION**

P.O. BOX 942896
SACRAMENTO, CA 94296-0001
(916) 653-6624 Fax: (916) 653-9824
calshpo@parks.ca.gov
www.ohp.parks.ca.gov



October 2, 2008

Reply To: FHWA080905C

Jennifer Darcangelo
Chief, Office of Cultural Resource Studies
Caltrans District 4
PO Box 23660
Oakland, CA 94623-0660

Re: Determinations of Eligibility for the Proposed Interstate 80/San Pablo Dam Road Interchange Project, Contra Costa County, CA

Dear Ms. Darcangelo:

Thank you for consulting with me about the subject undertaking in accordance with the *Programmatic Agreement Among the Federal Highway Administration, the Advisory Council on Historic Preservation, the California State Historic Preservation Officer, and the California Department of Transportation Regarding Compliance with Section 106 of the National Historic Preservation Act, as it Pertains to the Administration of the Federal-Aid Highway Program in California (PA)*.

The California Department of Transportation (Caltrans) is requesting my concurrence, pursuant to Stipulation VIII.C.5 of the PA, that the following properties are not eligible for the National Register of Historic Places (NRHP):

- 3168 Rollingwood Drive, San Pablo, CA
- 3160 Rollingwood Drive, San Pablo, CA
- 3152 Rollingwood Drive, San Pablo, CA
- 3144 Rollingwood Drive, San Pablo, CA
- 3072 Judith Court, San Pablo, CA
- 3066 Judith Court, San Pablo, CA
- 3058 Judith Court, San Pablo, CA
- 3040 Avon Lane, San Pablo, CA
- 3036 Avon Lane, San Pablo, CA
- 3030 Avon Lane, San Pablo, CA
- 3024 Avon Lane, San Pablo, CA
- 1424 Humboldt Avenue, San Pablo, CA
- 5286-5290 Riverside Avenue, San Pablo, CA
- 5296-5300 Riverside Avenue, San Pablo, CA
- 1300 Amador Street, San Pablo, CA
- 1175 Joel Court, Richmond, CA
- 1180 Joel Court, Richmond, CA

Ms. Darcangelo
October 2, 2008
Page 2

Based on my review of the submitted documentation, I concur with the foregoing determinations.

Thank you for considering historic properties during project planning. If you have any questions, please contact Natalie Lindquist of my staff at (916) 654-0631 or e-mail at nlindquist@parks.ca.gov.

Sincerely,

A handwritten signature in cursive script that reads "Susan K Shattuck for".

Milford Wayne Donaldson, FAIA
State Historic Preservation Officer